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CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

A LECTURE on Experimental Poliomyelitis. Delivered at the National Hospital for the Paralysed and Epileptic, Queen-square, on Feb. 6th, 1912, by FREDERICK W. BATTEN, M.D. Cantab., F.R.C.P. Lond., Physician for Out-patients at the Hospital, &c. ... 413

ORIGINAL ARTICLES.

Some Forms of Hæmorrhage which are Difficult of Explanation. By W. HALE WHITE, M.D. Lond. & Dub., Senior Physician to Guy's Hospital ... 416

Malignant Disease of the Testicle and the Treatment of it by Radical Operation. By H. MORRISTON DAVIES, M.C. Cantab., F.R.C.S. Eng., Assistant Surgeon, University College Hospital, London. —(*Illustrated*) ... 418

Partial Thyroidectomy under Local Anæsthesia, with Special Reference to Exophthalmic Goitre. By T. P. DUNHILL, M.D. Melb. ... 422

Tuberculous Disease of the Bones and Joints: Present Position of Treatment in London. By R. C. ELMSLIE, M.S. Lond., F.R.C.S. Eng., Chief Assistant in the Orthopædic Department, St. Bartholomew's Hospital; Assistant Surgeon, Metropolitan Hospital, &c. ... 424

Tuberculosis of the Mesenteric Glands in Children: its Nature and Treatment. By EDRED M. CORNER, M.C. Cantab., F.R.C.S. Eng., Surgeon and Lecturer to St. Thomas's Hospital and to the Hospital for Sick Children, Great Ormond-street ... 426

Enterectomy under Spinal Anæsthesia for Acute Intestinal Obstruction in an Infant 24 Hours Old; Survival for One Month. By GEORGE E. WAUGH, B.S. Lond., F.R.C.S. Eng., Surgeon to the Hospital for Sick Children, Great Ormond-street; and Assistant Surgeon to the Hampstead General and North-West London Hospital. — (*Illustrated*) ... 427

A Case of Severe Vertigo: Destruction of the Labyrinth; Cure. By MACLEOD YEARSLEY, F.R.C.S. Eng., Senior Surgeon to the Royal Ear Hospital; Consulting Aural Surgeon to the Royal School for the Deaf and Dumb, Margate, &c. ... 428

Removeable Bladder Sutures. By COLIN CLARKE, M.B., B.S. Lond., F.R.C.S. Eng., Lieutenant, R.A.M.C. — (*Illustrated*) ... 429

An Examination of the Medical Provisions of the National Insurance Act. By WILLIAM A. BREND, M.A. Camb., M.B., B.Sc. Lond., of the Inner Temple, Barrister-at-Law; Lecturer on Forensic Medicine, Charing Cross Hospital.—II ... 447

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

Abdominal Section Twice on the Same Patient for Acute Intestinal Obstruction due to Volvulus. By GEORGE HEATON, M.B. Oxon., F.R.C.S. Eng., Honorary Surgeon to the General Hospital, Birmingham ... 430

A Case of Post-Operative Pneumothorax Treated under Negative Pressure. By ROBERT NAIRN, F.R.C.S. Eng ... 430

Note on a Case of Cold Abscess of the Abdominal Wall. By G. MACDONALD, M.B., Ch.B. Edin., House Surgeon, Scarborough Hospital and Dispensary ... 431

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE:

CLINICAL SECTION:—Exhibition of Cases.—Congenital Absence of the Left Half of the Diaphragm Simulating Pneumothorax ... 431

LARYNGOLOGICAL SECTION: Exhibition of Cases and Specimens ... 433

SECTION OF ANÆSTHETICS:—Chloroform Poisoning ... 433

WEST LONDON MEDICO-CHIRURGICAL SOCIETY: Exhibition of Specimens, &c. 434

LIVERPOOL MEDICAL INSTITUTION: Œdema of the Orbit ... 435

GLASGOW MEDICO-CHIRURGICAL SOCIETY: Anti-typhoid Inoculation ... 435

REVIEWS AND NOTICES OF BOOKS.

Prehistoric Man. By W. L. H. Duckworth, M.A., M.D. Cantab., Sc.D. ... 436

Who's Who in Science (International), 1912. Edited by H. H. Stephenson ... 436

Some Factors Influencing Health in Tropical and Subtropical Countries. By T. Gerald Garry, M.D., M.A.O., M.Ch. R.U.I. ... 436

Guide to the Pathological Specimens of the Organs of Generation in the Female, Museum Royal College of Surgeons. By Alban H. G. Doran, F.R.C.S. Eng. ... 436

Nisbet's Medical Directory, 1912 436

Cocoa and Chocolate: Their Chemistry and Manufacture. By R. Whymper ... 436

Jahreskurse für Aerztliche Fortbildung ... 437

NEW INVENTIONS.

The Universal Colorimeter.—(*Illustrated*) ... 438

A New Blood Counting Pipette for Estimating the Numbers of Leucocytes and Blood Parasites per Cubic Millimetre.—(*Illustrated*) ... 438

LEADING ARTICLES.

LORD LISTER ... 439

THE NATIONAL INSURANCE ACT ... 440

ANNOTATIONS.

The International Opium Convention ... 441

In Memory of the late Dr. Bourneville ... 441

The Housing Question in Vancouver ... 442

Blue Atrophy of the Skin following Cocaine Injections 442

The Logic of Faddism ... 443

Malignant Chordoma, involving Brain and Spinal Cord ... 443

Dutch Drops ... 444

Improvement in Spondylitis Deformans under Fibrolysin 444

The Effects of Strenuous Athletics in the American Navy ... 445

Administration of the Pharmacy Acts ... 445

The International Obstetrical and Gynæcological Congress 446

The Incidence of Cancer in Finland ... 446

Preservative Tricks ... 446

VITAL STATISTICS:

Health of English Towns ... 453

Health of Scotch Towns ... 454

Health of Irish Towns ... 454

SPECIAL ARTICLES.

Report and Papers on Epidemic Poliomyelitis ... 450

Ventilation and Ozone ... 451

Medicine and the Law ... 452

The Services ... 454

Manchester: Annual Report of the Royal Infirmary.—Manchester Royal Eye Hospital (Annual Meeting) ... 460

Liverpool: Liverpool University (Degree in Hygiene).—Chester Infirmary ... 461

Bristol and the Western Counties: University of Bristol (Markham Skerritt Memorial) 462

Scotland: Medical Inspection of School Children in Aberdeen ... 462

Ireland: Dinner of the Royal College of Surgeons in Ireland ... 463

Paris: A Superior Commission on Medical Instruction ... 463

Constantinople: The Turkish Medical Mission to Tripoli ... 464

Vienna: Genealogy of the Austro-Hungarian Heir-Apparent ... 472

CORRESPONDENCE.

King Edward's Hospital Fund for London and the Evelina Hospital (Sir Savile Crossley and Mr. John G. Griffiths) ... 455

M. Bergson's "Creative Evolution" (Prof. George Henslow, Mr. Charles Walker) ... 456

The Fate of the Appendix after Abscess Formation (Mr. Douglas Drew, Dr. H. J. Godwin) ... 456

Diabetic Gangrene (Dr. W. Langdon Brown) ... 457

The Admission of Venereal Cases to General Hospitals ... 457

Guardians and Dissection ... 457

The Medical Profession and the National Insurance Act (Prof. Howard Marsh, Dr. R. Ackerley, Dr. Lovell Drage, Dr. John Cropper, Dr. Bernard O'Connor, Dr. J. B. Forster, Dr. A. B. Dunne) ... 458

Lord Brougham as his own Physician (Dr. I. D. Chapnell) ... 473

Medical Literature for Medical Missionaries (Rev. J. Anderson Robertson, M.B.) ... 479

OBITUARY.

Lord Lister, O.M., Serjeant-Surgeon to King Edward VII; late Regius Professor of Clinical Surgery in the University of Edinburgh and of Surgery in the University of Glasgow; Emeritus Professor of Clinical Surgery, King's College, London.—(*With 2 Portraits.*) ... 465

THE NATIONAL INSURANCE ACT.

Lectures on the Provisions of the Act ... 473

"An Appeal for a Strong but Moderate Policy" ... 473

The British Medical Association ... 473

The Medical Federation, Limited ... 473

Mr. Lloyd George and the Medical Profession ... 473

MEDICAL NEWS.

A New Obstetrical and Gynæcological Society ... 415

The Child Study Society, London ... 424

Association des Médecins de Langue Française ... 429

Donations and Bequests ... 431

Charing Cross Hospital Medical Society ... 438

Medico-Psychological Association of Great Britain and Ireland ... 443

Eighth Congress of the German Roentgen Society ... 451

Association for Promoting the Training and Supply of Midwives ... 460

Colonial Medical Services ... 460

Literary Intelligence ... 464

Foreign University Intelligence ... 475

West London Medico-Chirurgical Society ... 475

Vaccination Officers and their Fees ... 476

University of Cambridge ... 476

Congress of Physiotherapy, Paris ... 476

University of London ... 476

Chichester Infirmary ... 476

PARLIAMENTARY INTELLIGENCE.

Opening of Session ... 475

Books, &c., received ... 477

Appointments ... 477

Vacancies ... 477

Births, Marriages, and Deaths ... 478

Notes, Short Comments, and Answers to Correspondents ... 478

Medical Diary ... 480

Meteorological Readings ... 481

Acknowledgments of Communications received ... 482

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

ADLARD & SON:—
Fenwick .... Indications for Widely Resecting the Bladder Walls ..... Cover 1

ARNOLD:—
Parsons & Wright.... Practical Anatomy 5

BAILLIÈRE, TINDALL & COX:—
Bidwell .... Intestinal Surgery 10
Clarke, E. .. Errors of Accommodation and Refraction of the Eye .... Cover 1
Collier ..... Chronic Progressive Deafness ..... Cover 1
" ..... Nasal Obstruction, &c. ..... Cover 1
" ..... Latent, &c., Nasal Obstruction ..... Cover 1
" ..... Nasal Obstruction and Deformities of Upper Jaw ..... Cover 1
Denslow .... Treatment of Locomotor Ataxia ..... Cover 1
Eccles ..... Hernia, &c. 8
Freyer ..... Enlargement of the Prostate 8
Giles ..... Abdominal Operations. 8
" ..... Gynæcological Diagnosis 8
Griffiths .... Pulmonary Tuberculosis 8
Lambkin.... Syphilis 8
Paterson .... Gastric Surgery.. Cover 1
" .... Jejunal and Gastro-jejunal Ulcer.. Cover 1
Thorne..... Nauheim Treatment of Diseases of the Heart. 8

BALE, SONS & DANIELSSON:—
Braun & Lübe..... Handbook of Practical Parasitology.. Cover 1

PAGE

BALE, SONS & CO.—(Continued).
Daniels & Newham .. Studies in Laboratory Work .... Cover 1
Pearson .... Modern Surgical Technique ..... Cover 1
Woullin .... Inflammation of the Appendix ..... Cover 1
" .... Treatment of Gastric Ulcer ..... Cover 1

CASSELL & CO.:—
Berkeley & Bonney.... Gynæcological Surgery 7
Bland-Sutton Tumours 7
Candy ..... Manual of Physics 7
Gould, Sir A. P. .. Surgical Diagnosis 7
Habershon .. Diseases of the Stomach 7
Herman..... Difficult Labour 7
Hutchinson, Sir J..... Syphilis 7
Morris, Sir M. Diseases of the Skin .. 7
System of Surgery 7
Thomson, St Clair .. Diseases of Nose, &c. .. 7
Yeo, &c. .... Medical Treatment 7

CHURCHILL, J. & A.:—
Cripps ..... Cancer of the Rectum.. 10
" ..... Diseases of the Rectum 10

CORNISH BROS.:—
Sawyer, Sir J. Maladies of the Heart.. 10
" Contributions to Practical Medicine 10
" Insomnia 10

FROWDE:—
Berkart .... On Bronchial Asthma, &c. ..... Cover 1

PAGE

FROWDE AND HODDER & STOUGHTON:—
Bidwell .... Minor Surgery 10

GLAISHER:—
Herschell.... Treatment of Duodenal Ulcer ..... Cover 1

GRIFFIN & CO.:—
Middell..... Manual of Ambulance . 10
Saundby .... Diseases of the Digestive System 10
West..... Diseases of the Organs of Respiration 10

LEWIS:—
Binnie ..... Manual of Operative Surgery 3
Lewers..... Diseases of Women 10
" ..... Cancer of the Uterus .. 10
Moullin .... Enlargement of the Prostate ..... Cover 1
Roth..... Lateral Curvature of the Spine..... Cover 1
Tilley ..... Diseases of the Nose, &c. ..... Cover 1

LONGMANS, GREEN & CO.:—
Ashby ..... Notes on Physiology .. 6
Cheyne & Burghard Surgical Treatment.... 6
Coats..... Pathology 6
Colyer ..... Dental Surgery, &c. 6
" ..... Dental Disease 6
Halliburton.. Chemical Physiology .. 6
Marshall .... Physiology of Reproduction 6
Quain's Dictionary of Medicine 6
Schäfer..... Essentials of Histology 6

MEDICAL PUBLISHING CO.—
Lane ..... Operative Treatment of Fractures .... Cover 1
" ..... Cleft Palate and Hare Lip ..... Cover 1

PAGE

NISBET & CO.:—
Lane ..... Treatment of Chronic Constipation .. Cover 1
Wilkinson .. Tuberculin in the Diagnosis of Tuberculosis ..... Cover 1

REBMAN:—
Beattie & Dickson .. General Pathology 8
Beattie & Dickson .. Special Pathology 8

SAUNDERS COMPANY:—
Dannreuther Minor and Emergency Surgery..... 9
Davis ..... Operative Surgery 9
Epoch-Making Contributions to Medicine and Surgery 9
Surgical Clinics of Dr. John B. Murphy 9
The Surgical Clinics of John B. Murphy, M.D. ..... Cover 1

SPRAGUE & CO.:—
Ernst..... Orthopædic Apparatus Guide 10

MEDICAL LIBRARIES, &c.:—
Baker, Birmingham—Book Bargains..... 10
Beasley & Ketley—Stammering 10
Behnke—Stammering 10
Davidson & Co.—Sight Testing for the General Practitioner ..... Cover 1
Matthews Bros.—Wood: Application of Trusses.... 10

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Addenbrooke's Hospital, Cambridge .. 76
Barry Urban District Council 77
Birmingham and Midland Eye Hospital 76
Birmingham and Midland Hospital for Skin &c., Diseases 76
Bombay, Baroda, and Central India Railway 77
Bradford Poor-Law Union Hospital, &c. 77
Bristol General Hospital 75
Charing Cross Hospital 77
Charing Cross Hosp. Medical School.. 76
County Asylum, Mickleover..... 77
David Lewis Northern Hospital, Liverpool 75
Devon County Asylum, Exminster .. 76
Dewsbury and District General Infirmary 76
Dumfries and Galloway Royal Infirmary 76
Dundee Royal Infirmary 76
Evelina Hospital for Sick Children .. 77
Hampstead General Hospital 76
Horton Infirmary, Banbury..... 76
Hospital for Sick Children, Great Ormond-street 76
Hospital for Women, Soho-square.... 77
Infants' Hospital, Westminster 77
King Edward VII. Hospital for Windsor, &c. 76
Lancashire County Asylum, Winwick 77
Leeds General Infirmary 76
Macclesfield General Infirmary 76
Newcastle-upon-Tyne Union Infirmary, &c. 76
New Hospital for Women, Euston-road 77
North Lonsdale Hospital, Barrow-in-Furness 76
North Staffordshire Infirmary, Stoke-on-Trent 75
Nottingham General Dispensary 76
Radcliffe Infirmary and County Hospital, Oxford 75
Royal Hampshire County Hospital .. 75
Royal Isle of Wight County Hospital 76
Royal Naval Medical Service 75
Royal Southern Hospital, Liverpool.. 77
Royal South Hants and Southampton Hospital 77
St. Mary's Hospitals for Women and Children, Manchester 77
Salford Royal Hospital 76
Salop Infirmary, Shrewsbury 77
Stirling District Asylum, Larbert 76
Stockwell Training College 77
University of Birmingham 76
University of Sheffield..... 75
West African Medical Staff 75
Western General Dispensary, Marylebone-road 76
West London Hospital, Hammersmith 76
West Riding of Yorkshire County Council 76
Wolverhampton and Staffordshire General Hospital..... 75

ASSISTANCIES, MEDICAL..... 78

ASYLUMS, HOMES, &c.:—
Arnold, Brighton 75
Ashwood House, Kingswinford 69
Association of Medical Men Receiving Resident Patients 75
Barnsley Hall, Bromsgrove 69
Barnwood House Hospital 70
Bishopstone House, Bedford..... 69
Brunton House, Lancaster..... 75
Buntingford House Retreat, Buntingford 71
Camberwell House, Peckham-road.... 69
Cheadle Royal 69
Clarence Lodge, Clapham-park 70
Coldhurst House, Warford..... 68
Coppice, The, Nottingham..... 70
Crooksbury Sanatorium, Surrey 74
Croydon Mental Hospital 68
Dairymple House, Rickmansworth .. 68
Dartmoor Sanatorium 72
David Lewis Colony, Alderley Edge .. 75
Dinsdale Park, Darlington..... 70
Ghyllwoods 72
Grove House, Church Stretton..... 70
Grove, The, Catton, Norwich 70
Haslemere Nursing Home..... 75
Haydock Lodge, Newton-le-Willows . 71
Heigham Hall, Norwich 69
Home for Epileptics, Maghull..... 69
Inverclyde Sanatorium, Cupar..... 68
Invernith Lodge Sanatorium, Colinsburgh 72
Kingsdown House, Box 69
London Fever Hospital 68
London Open - Air Sanatorium, Wokingham 75
Malling Place, Kent 70
Malvern Hydropathic 74
Manna Mead, Blackheath 75
Melbourne House, Leicester 69
Middleton Hall, Co. Durham 69
Moat House, Tamworth 70
Newmains Retreat, Lanarkshire 72
Nordrach in Wales Sanatorium 73
Nordrach-on-Dee, Banchory 73
Nordrach-upon-Mendip Sanatorium.. 73
Northlands Retreat, Wandsworth 68
Northumberland House, Finsbury-park 71
Northwoods House, Winterbourne.... 71
Norwood Sanatorium, Ltd. 72
No. 593, L.O., Strand..... 75
No. 874, L.O., Strand..... 75
Osea Island, Heybridge 72
Peckham House 71
Plympton House, South Devon 70
Portsmouth Corporation Mental Hospital 70
Ruxbury Sanatorium, Northallerton.. 74
St. Andrew's Hospital, Northampton. 70
St. George's Retreat, Burgess Hill.... 68
St. Luke's Hospital, E.C. 69
St. Ursula, Westcliff-on-Sea 75
Sanatorium Clavadel..... 73
Shaftesbury House, Formby-by-the-Sea..... 71
Springfield House Private Asylum, Bedford 70

ASYLUMS—(Continued).
Stocker, Craven-street 75
Streeton House, Church Stretton..... 70
The Grange, Rotherham 69
The Pleasaunce, York 70
Vale of Clwyd Sanatorium..... 73
Warneford Asylum, Oxford 69
White Hall, South Norwood Hill 69
Wye House, Buxton 70
Yarrow Convalescent Home, Broadstairs..... 71

FINANCIAL, &c.—
Equitable Reversionary Interest Soc. 68

HEALTH RESORTS, BATHS, &c.:—
Aix-les-Bains, Savoy ..... Cover iii
Alexandra Therapeutic Institute 74
Leysin, Switzerland 74
Peebles Hotel Hydropathic 74
Smedley's, Matlock 74

HOMES WANTED:—
No. 561, L.O., Strand..... 75

HOTELS:—
Eden Hotel, Nervi 74
Hotel Metropole, Las Palmas 74
White Hart Hotel, Margate 74

HOUSE & ESTATE AGENTS:—
Cross & Co., Uxbridge-road 79
Cude, Archway-road..... 79
Horner & Son, Norwich..... 79
Ivy Clark, Wimpole-street 7
Mr. S., Sevenoaks 79
No. 590, L.O., Strand..... 79
No. 534, L.O., Strand..... 79
Principal Agents, Cheltenham 79
Rogers, Chapman & Thomas, Westminster 79
Weatherall & Green, Chancery-lane.. 79
CONSULTING-ROOMS:—
L. A., Knightsbridge 80
25, New Cavendish-street 80
Owner, Queen Anne-street..... 80
Regina Bureau, Duke-street 79

LIFE & FIRE ASSURANCES:—
National Provident Institution 67
Prudential 67

MASSAGE:—
London School of Massage..... 67

MEDICAL ACCOUNTANTS, &c.:—
Dacie 78
Turner 79

MEDICAL AGENTS:—
Blundell & Rigby 82
Fieldhall, Limited 83
Lee & Martin, Birmingham 82
Manchester Clerical, &c., Association. 82
Manchester Medical Agency 80

MEDICAL AGENTS—(Continued).
Medical Agency 82
Moore & Co. 78
Needes, Herbert 83
Needes, J. C. 82
Peacock & Hadley 83
Scholastic, Clerical, &c., Assoc. 84
Turner 81

MEDICAL SCHOOLS:—
(LONDON.
West London Post-Graduate College.. 65
(PROVINCIAL, &c.)
Edinburgh University Residential Medical College 66

NURSING INSTITUTES:—
General Nursing Association..... 67
Hospital for Sick Children, Great Ormond-street 67
Leeds Trained Nurses' Institution 68
London Nurses' Association 67
Male Nurses Temperance Co-operation 68
Mental Nurses' Co-operation..... 67
National Hospital Male Nurses' Association 67
Nurses' Co-operation, Portland-place.. 67
Registered Nurses' Society 67
St. John's House 67
St. Luke's Hospital, E.C. 67
Temperance Male Nurses' Co-operation 67
The Retreat, York..... 68

OFFICIAL NOTICES:—
City of London Lying-in Hospital .. 65
Epsom College 66
London Hospital 65
London Post-Graduate Association .. 65
London School of Clinical Medicine .. 65
Medical Graduates' College and Polyclinic 66
North-East London Post-Graduate College 65
Oxford Eye Hospital 63
Queen Charlotte's Lying-in Hospital.. 65
Royal London Ophthalmic Hospital.. 68
Royal Society of Medicine ..... Cover 1
University of Durham..... 84
University of London 66
West End Hospital for Diseases of Nervous System 65
York-road General Lying-in Hospital, Lambeth 66

PARTNERSHIPS & PRACTICES 73

RAILWAY & STEAMSHIP CO.'S
New Zealand Shipping Co..... 67

TUTORS & LECTURERS:—
Gemmell 66
Knight 66
Med. Corres. Coll. 66
No. 449, L.O. .. 80
Schnelle 10
Weymouth 65

For Index to Trade and Miscellaneous Advertisements see page 4.

A Lecture
ON
EXPERIMENTAL POLIOMYELITIS.

Delivered at the National Hospital for the Paralysed and Epileptic, Queen-square, on Feb. 6th, 1912,

BY FREDERICK E. BATTEN, M.D. CANTAB., F.R.C.P. LOND.,
PHYSICIAN FOR OUT-PATIENTS AT THE HOSPITAL, ETC.

GENTLEMEN,—The earlier experimental work on the transmission of poliomyelitis from man to monkeys is now so well known that it is not proposed in this lecture to refer to it in any detail, but the following brief summary of the facts of its transmission may well be mentioned.

EARLIER EXPERIMENTAL WORK.

In 1909 Landsteiner and Popper succeeded in transmitting poliomyelitis to two monkeys; they did not succeed in transmitting the disease to a series of monkeys. In the same year Knöpfelmacher produced the disease in a monkey by injecting into the peritoneum an emulsion of the spinal cord from a case of poliomyelitis. In the same year Strauss and Huntoon in America succeeded in producing poliomyelitis in a monkey by intraperitoneal injection.

Flexner and Lewis in 1910 produced the disease in monkeys by intracerebral injections, and were the first observers to transmit the disease through a series of monkeys. Landsteiner and Levaditi showed that the virus would pass through porcelain filters and also that glycerine did not destroy the virus. Working on the same lines and at the same time, Leiner and Wiesner in Vienna, Roemer and Joseph in Marburg, Krause and Meinicke confirmed these observations and added much to the knowledge of the nature of the virus.

NATURE OF THE VIRUS.

(*a*) *Filterability.*—It was shown by Flexner and Lewis, and Landsteiner and Levaditi that the virus would pass a porcelain filter. The latter observers noted that it would pass the Berkefeld, Chamberland, and Reichel filters, but that, after such a passage through the filter, the virus lost some of its virulence, and the incubation period was always prolonged, and the monkey either did not die or only died some days after the development of the disease.

(*b*) *Glycerine resistance.*—It has been shown by Landsteiner and Levaditi that the virus will resist the action of glycerine either concentrated or with 50 per cent. of water without impairing its virulence. The virus has been kept for 142 days in pure glycerine without affecting its virulence. In this respect the virus resembles that of rabies and vaccinia.

(*c*) *Resistance to drying.*—Flexner and Lewis, Landsteiner and Levaditi found that prolonged drying even to 24 days at a temperature of 22° C. did not diminish the virulence, and in this respect differed from rabies. Leiner and Wiesner, however, found that drying of thin films for four hours at a temperature of 37° C. did destroy the virulence. Leiner and Wiesner have shown that the virus is killed by exposure to a temperature of 55° C. for half an hour, and it is not killed by exposure to a temperature of −8° C.

(*d*) *Resistance to disinfectants.*—It has been shown by Landsteiner and Levaditi that 0·2 per cent. solution of potassium permanganate will kill the virus in one hour at a temperature of 39° C., and that 6 per cent. peroxide at the same temperature will destroy the virus in 45 minutes. The virus is not killed by ½ to 1½ per cent. of carbolic acid.

(*e*) *Cultivation of organism.*—The organism has not yet been cultivated, although Flexner and Lewis found some evidence that the organism multiplied in mixtures of broth and monkey serum.

The organism has not been stained or seen under the microscope, although Levaditi found a small round and oval corpuscle which he was able to stain by Löffler's method as modified by Borrel. Roemer made a similar observation, and examined them under the ultra-microscope.

THE RETENTION OF THE VIRUS IN THE ANIMAL BODY.

The question how long the virus remains in the body of the animal is difficult to answer. It has been found in the spinal cord 33 days after the onset of the disease. On the other hand, Leiner and Wiesner found that it had disappeared from the cord six days after the onset of the paralysis. In other parts of the body—viz., the nasal mucous membrane—it has been found six months after the onset (Osgood and Lucas).

PREPARATION OF EMULSION AND METHOD OF INFECTION.

The emulsion is prepared by pounding up 1 gramme of the infected portion of the spinal cord with 20 c.c. of normal saline solution; 0·5 c.c. of this emulsion is injected into the brain and 4–5 c.c. into the peritoneal cavity (Roemer).

The most certain method of producing infection is by injection of the virus into the brain. Injection into the peritoneal cavity, the anterior chamber of the eye, the subcutaneous tissue, and intravenous injections have all been successful in producing the disease.

Leiner and Wiesner showed that the virus could pass through the gastro-intestinal mucosa, but other observers, Levaditi and Landsteiner, failed to obtain positive results, and suggest that infection only takes place if there is a previous lesion of the intestinal walls. Leiner and Wiesner, in order to avoid the action of gastric juice, injected the virus into certain portions of the intestines after opening the abdomen. Three of the four monkeys thus operated on developed poliomyelitis. The fact that the virus can penetrate the mucous membrane of the digestive tract raises the possibility of the transmissibility of poliomyelitis by milk.

The virus will pass the nasal mucous membrane if injured (Landsteiner and Levaditi), but Leiner and Wiesner have shown that it will pass the uninjured mucous membrane. No case of natural contagion has been reported in a monkey, although infected and non-infected monkeys have been kept in close contact in the same cage.

MODE OF PROPAGATION OF VIRUS WITHIN THE BODY.

(*A*) *By the blood-stream.*—Injection into the blood-stream gives rise to poliomyelitis. This shows that the blood stream can carry the virus.

(*B*) *By the lymphatic system.*—Leiner and Wiesner produced poliomyelitis by injecting the inguinal glands with the virus. Flexner and Lewis injected a monkey subcutaneously with the virus. The animal was killed while suffering from poliomyelitis. From this monkey they then injected three monkeys: (1) with the spinal cord emulsion; (2) with the nodule formed at the place of injection; and (3) with the lymphatic gland corresponding with the inoculated region. Only the monkey that was injected with No. 2, the nodule, remained unaffected.

The virus has been obtained from the mesenteric glands of a child suffering with poliomyelitis (Flexner and Lewis). It has been shown (Flexner and Lewis, Levaditi and Landsteiner) that the virus injected into a peripheral nerve gives rise to paralysis, the disease commencing in the limb corresponding to the nerve injected.

Leiner and Wiesner found that if the nerve is divided immediately after the introduction of the virus into the peripheral end the spread of the disease is prevented. In whatever way the animal is infected, it is in the central nervous system, and especially the grey matter of the cord, that the virus tends to locate itself.

The disease cannot be transmitted by blood obtained from paralytic men and monkeys. This statement, though in the main true, is not absolutely so, for it has been shown by Flexner and Lewis—if large quantities, i.e., 25 c.c., are withdrawn from a monkey at the height of the disease, and are injected into a healthy monkey—that animal develops the disease. From human blood the disease has not been produced. The cerebro-spinal fluid also is free from the virus. In this connexion, however, Flexner and Lewis found that the cerebro-spinal fluid taken from a monkey three days after it had been given a cerebral injection and injected into a fresh monkey gave rise to poliomyelitis in six days. This shows that the virus can multiply in the cerebro-spinal fluid before the outbreak of paralytic symptoms.

INCUBATION PERIOD.

The incubation period is subject to very considerable variations. The variations depend upon (1) the *method of injection*, (2) the amount of virus given, and (3) the method of treating the virus before injection. Of 81 monkeys infected by Lewis and Flexner, 47 became paralysed between

the eighth and twelfth day, 18 became paralysed before the eighth day, and 16 after the twelfth day. Levaditi found the average incubation period from seven to ten days, and Roemer gives the incubation period as nine days.

The following factors were found to govern the incubation period. The less virulent the material, the longer was the incubation period. Filtration diminished the virulence (Levaditi and Landsteiner, Leiner and Wiesner). Thus an unfiltered emulsion produced poliomyelitis in seven days; the same quantity of filtered emulsion produced poliomyelitis in 27 days.

The quantity given also alters the incubation period. Dilution, again, has the same effect, and if diluted beyond a certain limit the virus will not produce poliomyelitis (Roemer). Thus an animal, injected intracerebrally with 0·5 c.c. of a 5 per cent. spinal cord emulsion, became paralysed on the seventh day and died on the eighth day. Another monkey, inoculated with the same quantity but ten times less concentrated, became ill on the twelfth and died on the thirteenth day. Another monkey, injected with the same quantity 100 times diluted, survived without having manifested any paralytic symptoms.

Leiner and Wiesner found that inoculation of a very concentrated virulent emulsion appeared to exercise rather an unfavourable influence on the development of poliomyelitis. The incubation period was slightly longer, and the course of the disease goes on as if in the nervous tissues there were, in addition to the acting virus, certain preventive substance which exercises a neutralising action on the virus.

WHAT HAPPENS DURING THE INCUBATION PERIOD?

Leiner and Wiesner showed that the virus spread to the nervous system before it was possible to observe any morbid manifestation in the central nervous system. Levaditi and Landsteiner found that the anatomical and pathological alterations commenced at a time very close to the outbreak of clinical signs. The virus of poliomyelitis can invade the nervous system and multiply there without causing for a time any apparent trouble or distinct lesion. The paralytic phenomena in a monkey may commence very suddenly—i.e., the monkey may be quite well in the morning and completely paralysed by the evening. It is a striking fact that in the majority of cases, in spite of the inoculation of the virus into the brain, the disease commences by paralysis localised to the lower extremities.

INFECTION OF ANIMALS OTHER THAN MONKEYS AND APES.

Most observers have failed to transmit the disease to animals other than monkeys and apes. Flexner and Lewis tried the horse, ox, pig, rat, cat, and rabbit. Levaditi and Landsteiner tried the rabbit, guinea-pig, young dog, and sheep. Leiner and Wiesner tried young dogs, fowls, pigeons, and rabbits; and Roemer rabbits, guinea-pigs, and mice. All without success.

Krause and Meinicke, Lentz and Huntemüller assert that they transmitted poliomyelitis regularly to rabbits. These rabbits succumbed with or without paralytic symptoms, and on histological examination the characteristic changes of poliomyelitis, more or less pronounced, were found. These investigators think that the inoculation into rabbits of cerebro-spinal fluid, blood, brain, or spleen obtained from human cases of poliomyelitis leads to the death of these animals, and the inoculation of similar tissues obtained from rabbits that have succumbed into other rabbits will bring about their death. When the injections were made into the blood and peritoneal cavity a greater number of positive results were made than when they were made into the brain. The effects could be produced in rabbits, not only with an emulsion of the organs mentioned, but also with Berkefeld filtrates prepared from them. Levaditi once succeeded in transmitting poliomyelitis in a rabbit, and the spinal lesion was even more marked than in a monkey.

Marks has further investigated this question. He used young rabbits; these were injected with an emulsion of the spinal cord from a poliomyelitic monkey—2·5–35 c.c. were injected intravenously and intraperitoneally. The injection had no immediate effect on the rabbit. Some of the animals injected died between the eighth and fifteenth day after injection. When death occurred the symptoms came on suddenly, the final stage being generally ushered in by convulsions and rigidity, and death took place in from 10 to 30 minutes after the onset of the symptoms. The post-mortem examination showed hyperæmia of the cortex, but no other striking lesion, and microscopical examination failed to show any further characteristic change. Other rabbits were injected with emulsions from various organs of the rabbits which died, and some of these rabbits succumbed. The virus was thus passed through a series of six rabbits. From rabbits in the second, fourth, and sixth set of the series of rabbits, monkeys were inoculated, and these monkeys all developed typical poliomyelitis.

These results leave no doubt that poliomyelitis can be propagated in certain individual rabbits, and also that the virus is not confined to the central nervous system, but occurs in equal amount in other organs. It is probable also that not all strains of the virus can be transmitted to even a small fraction of individual rabbits, and this may account for Roemer and Joseph's failure in a long series. It is thus established that the virus of poliomyelitis can survive and probably be propagated in domestic animals that do not show any of the symptoms of poliomyelitis as it occurs in man.

Roemer has observed in guinea-pigs a disease similar to poliomyelitis in man. It arose *spontaneously* in a guinea-pig, and was transmitted to a series of these animals by inoculation. All the animals were paralysed between the ninth and twenty-third day after injection. No organism was visible; the virus passed the Berkefeld filter and was well preserved in glycerine. The virus was present in the brain, spinal cord, liver, inguinal and prævertebral glands, but was not present in the blood, kidney, lungs, or urine. The cord showed the typical lesions of poliomyelitis.

IMMUNITY.

On clinical grounds there is good reason to believe that an individual who has survived an attack of poliomyelitis is immune to a second attack. Experimentally shown by Flexner and Lewis, Levaditi and Roemer, that monkeys which have survi[ved] of infection are immune to a fresh dos[e] considers that immunity is only ac[quired] twenty-fourth day, but other obser[vers] observation.

In one case Leiner and Wiesn[er] infect a monkey which was par[alysed] is probably an exceptional insta[nce] performed experiments to determ[ine] of monkeys, killed after the acute refractory stage reached, contained of the active virus. They found tha[t] disease by using the spinal cord o[f] twenty-fourth day of the disease. Th[ey] that the active virus and the antibodies [are] time and in the same individual.

PRODUCTION OF ARTIFICIAL IMMUNITY.

Levaditi and Landsteiner used the same method for rendering a monkey immune against poliomyelitis as is used for producing immunity against rabies. To a certain extent this method was successful, but in some cases poliomyelitis has been produced by injection of the dried cords. Flexner and Lewis, by giving injections of diluted virus, were able to make monkeys immune to many times the lethal dose.

Flexner and Clark found the immunity principle to exist, both in the blood and cerebro-spinal fluid, soon after an attack of poliomyelitis. After one to two months the cerebro-spinal fluid lost its immunity principles, but it remained in the blood for years.

Hexamethylenamine given by the mouth delays, and may prevent, infection (Flexner and Clark). Kraus found that saline emulsion of brain and cord of a monkey, treated for five days with 1–1½ per cent. carbolic, is no longer infective on subcutaneous injection; 10 c.c. of virus thus sterilised, injected subcutaneously, protects animals against a subsequent subdural infection. Serum which is viricidal *in vitro* does not confer protection when injected subcutaneously.

SERUM DIAGNOSIS.

1. *Experimental method.*—Levaditi and Landsteiner, and Müller have shown that it is possible to test the serum of patients and monkeys for their viricidal properties. For this purpose a 5 per cent. emulsion of the spinal cord containing the active virus is mixed with an equal quantity of the serum to be tested. The mixture must be made at a temperature of 34° C., and stood at room temperature for several hours. It is then injected intracerebrally in quantities of 0·6–0·8 c.c.

into a normal monkey. A control monkey receives the same quantity of the virus. The control monkey becomes infected, the other monkey remains free. This experiment has been tried with the blood of patients who have had herpes zoster, but the experiments were inconclusive, as the control monkey was not affected (Müller).

Anderson and Frost found that the blood serum, in six out of nine suspected cases of abortive poliomyelitis, was viricidal against the virus of the poliomyelitis. Landsteiner, Levaditi, Leiner, and Wiesner have all shown that the serum is viricidal *in vitro*, but not *in vivo*. The serum injected into animals has no preventive or curative effect.

2. *Deviation of the complement method.* — This point has been investigated by Wollstein, Roemer, Joseph, Levaditi, and Landsteiner. All these observers agree that the use of an extract of organs containing the virus as antigen does not permit the discovery of antibodies in the serum or cerebro-spinal fluid.

"BREEDS" OF VIRUS.

It is essential before discussing "breeds" of viruses to understand how the words "breeds," "races," and "strains" should be used. The word "breed" is used to indicate a variation in character of the virus. The word "races" should be used in the same sense. Flexner and Clark have used the word "race" to indicate increased or decreased virulence of the virus as applied to monkeys and man. The word "strain" is used to indicate a variation in the source from which the virus is obtained.

Levaditi has brought forward evidence to show that there are differences between the viruses obtained from different sources. So far two breeds are known—the virus of Landsteiner, Vienna, and the virus of Flexner, America. Levaditi has shown that the virus of Flexner is neutralised *in vitro* by the serum of a monkey which has been rendered immune to the Flexner virus. It is not neutralised by the serum of a monkey rendered immune to the Landsteiner virus. On the other hand, the virus of Landsteiner is neutralised by the serum of a monkey rendered immune to Landsteiner virus, but it is not neutralised by the serum of monkey rendered immune to the Flexner virus.

Flexner virus is more virulent than the Landsteiner virus. It remains to be proved if the English virus differs from the above two. No one in England has succeeded in transmitting the disease from an English strain to a monkey. Flexner and Clark state that they have succeeded in inoculating upon monkeys all the ten strains of human virus which they have examined. That is to say, monkeys have been infected from ten human cases. These authors state that other experimenters have only been able to implant about one half of the human strains of poliomyelitic virus upon monkeys. In order to succeed in all instances it is necessary to inoculate emulsions of the human spinal cord, and preferably to make double inoculation into the brain and peritoneal cavity.

The human strains of the virus not only infect monkeys less readily than do the modified or monkey strains, but the experimental disease produced by them is less severe and less fatal. After the strains have once become wholly adapted to the monkey the paralytic disease appears in a more severe form, and the degree of infectivity rises, so that exceedingly minute doses of a filtrate are capable of producing constant infection.

ELIMINATION OF THE VIRUS.

Levaditi and Landsteiner have found the virus in the salivary glands. It has not been found in the saliva. Flexner and Lewis have found the virus in the mucous membrane of the nose of a monkey killed during the acute stages of the disease. Osgood and Lucas have found it in this situation six months after the onset of the disease. Leiner and Wiesner showed that the nasal mucous membrane became infected on the second day after injection. The virus has not been found in the urine, fæces, kidney, or intestinal mucous membrane.

Flexner and Clark found the virus to be present in the tonsils and pharyngeal mucosa of a patient who had died during the acute stages of poliomyelitis. They obtained successful experimental results by preparing an emulsion of the tonsil with 0·5 per cent. solution of carbolic acid.

DISTRIBUTION OF THE VIRUS OUTSIDE THE BODY.

So far the only evidence upon this subject is that furnished by Neustaedter and Thro, who examined the dust in rooms in which cases of poliomyelitis had been nursed. After many failures they succeeded in producing poliomyelitis in a monkey with the filtrate of macerated dust in salt solution. They conclude, therefore, that poliomyelitis is propagated by dust, and that the naso-pharynx is probably the point of entry.

Flexner and Clark have shown that flies can harbour the virus in their bodies in a living and infective state for at least 48 hours.

TYPES OF EXPERIMENTAL POLIOMYELITIS.

All the usual types of poliomyelitis as seen in man have been reproduced experimentally in monkeys. There is the ordinary type with flaccid paralysis of one or more limbs, the ascending type, the cranial type, the abortive type. The "jumping" type has also been observed in monkeys, and Roemer gives the history of a monkey paralysed on the twelfth day which showed considerable amelioration at the end of the sixteenth day; but three weeks afterwards it had a relapse and died two days after being ill.

PATHOLOGICAL CHANGES FOUND IN EXPERIMENTAL POLIOMYELITIS.

The changes found in the brain and spinal cord in experimental poliomyelitis do not differ from those found in natural infection. In the spinal cord the lesions are usually more severe and widespread than in the brain. The meninges usually show a more or less diffuse infiltration with round cells. The layers immediately next to the white matter of the cord tend to show more cells than the layers next the dura mater.

The greatest accumulation of cells is about the arteries and veins, the sheaths of which are surrounded by cells. The effect of these cells on the lumina of the smaller vessels is considerable.

The meningeal cellular invasion is only interstitial, and does not give rise to an exudate upon the surface of the cord or brain such as occurs in acute exudative inflammation.

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A NEW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting will be held at the Grand Hotel, Birmingham, on Tuesday next, Feb. 20th, at 5.30 P.M., to found an Obstetrical and Gynæcological Society embracing the Midland, Eastern, and Western Counties of Great Britain. The meeting will have the following agenda before it: (1) To consider the name of the proposed society; (2) to form rules and by-laws; (3) to arrange time and places of meetings; (4) to elect officers and council for 1912–13; (5) to dispose of such other business as may arise. At 7 P.M., after the meeting, a dinner will take place, the price of which, exclusive of wine, will be 7*s.* 6*d.* An early reply as to intention to be present or desire to join the society should be made to Mr. H. Beckwith Whitehouse, 52, Newhall-street, Birmingham), who is acting as honorary secretary (*pro tem.*) to the movement. A letter has already been circulated, signed by Dr. Edward Malins, Dr. Christopher Martin, Dr. Thomas Wilson, Dr. C. E. Purslow, Mr. Frederick Edge, Mr. J. Furneaux Jordan, Mr. Smallwood Savage, Dr. John T. Hewetson, Dr. Ann E. Clark, Dr. Mary D. Sturge, and Mr. Beckwith Whitehouse, these representative gynæcologists practising in Birmingham believing that the time has arrived for the formation of a new Obstetrical and Gynæcological Society embracing the Midland Counties, and, if sufficient support be obtained, including also the West of England and perhaps the East. To this letter many favourable replies have already been received.

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Krause and Meinicke, Lentz and Huntemüller assert that they transmitted poliomyelitis regularly to rabbits. These rabbits succumbed with or without paralytic symptoms, and on histological examination the characteristic changes of poliomyelitis, more or less pronounced, were found. These investigators think that the inoculation into rabbits of cerebro-spinal fluid, blood, brain, or spleen obtained from human cases of poliomyelitis leads to the death of these animals, and the inoculation of similar tissues obtained from rabbits that have succumbed into other rabbits will bring about their death. When the injections were made into the blood and peritoneal cavity a greater number of positive results were made than when they were made into the brain. The effects could be produced in rabbits, not only with an emulsion of the organs mentioned, but also with Berkefeld filtrates prepared from them. Levaditi once succeeded in transmitting poliomyelitis in a rabbit, and the spinal lesion was even more marked than in a monkey.

Marks has further investigated this question. He used young rabbits; these were injected with an emulsion of the spinal cord from a poliomyelitic monkey—2·5–35 c.c. were injected intravenously and intraperitoneally. The injection had no immediate effect on the rabbit. Some of the animals injected died between the eighth and fifteenth day after injection. When death occurred the symptoms came on suddenly, the final stage being generally ushered in by convulsions and rigidity, and death took place in from 10 to 30 minutes after the onset of the symptoms. The post-mortem examination showed hyperæmia of the cortex, but no other striking lesion, and microscopical examination failed to show any further characteristic change. Other rabbits were injected with emulsions from various organs of the rabbits which died, and some of these rabbits succumbed. The virus was thus passed through a series of six rabbits. From rabbits in the second, fourth, and sixth set of the series of rabbits, monkeys were inoculated, and these monkeys all developed typical poliomyelitis.

These results leave no doubt that poliomyelitis can be propagated in certain individual rabbits, and also that the virus is not confined to the central nervous system, but occurs in equal amount in other organs. It is probable also that not all strains of the virus can be transmitted to even a small fraction of individual rabbits, and this may account for Roemer and Joseph's failure in a long series. It is thus established that the virus of poliomyelitis can survive and probably be propagated in domestic animals that do not show any of the symptoms of poliomyelitis as it occurs in man.

Roemer has observed in guinea-pigs a disease similar to poliomyelitis in man. It arose *spontaneously* in a guinea-pig, and was transmitted to a series of these animals by inoculation. All the animals were paralysed between the ninth and twenty-third day after injection. No organism was visible; the virus passed the Berkefeld filter and was well preserved in glycerine. The virus was present in the brain, spinal cord, liver, inguinal and prævertebral glands, but was not present in the blood, kidney, lungs, or urine. The cord showed the typical lesions of poliomyelitis.

IMMUNITY.

On clinical grounds there is good reason to believe that an individual who has survived an attack of poliomyelitis is immune to a second attack. Experimentally it has been shown by Flexner and Lewis, Levaditi and Landsteiner, and Roemer, that monkeys which have survived the acute period of infection are immune to a fresh dose of the virus. Roemer considers that immunity is only acquired after about the twenty-fourth day, but other observers do not confirm this observation.

In one case Leiner and Wiesner have been able to re-infect a monkey which was paralysed for 18 days. This is probably an exceptional instance. Leiner and Wiesner performed experiments to determine if the nervous system of monkeys, killed after the acute stage had passed and the refractory stage reached, contained an appreciable quantity of the active virus. They found that they could transmit the disease by using the spinal cord of a monkey killed on the twenty-fourth day of the disease. This would seem to show that the active virus and the antibodies can exist at the same time and in the same individual.

PRODUCTION OF ARTIFICIAL IMMUNITY.

Levaditi and Landsteiner used the same method for rendering a monkey immune against poliomyelitis as is used for producing immunity against rabies. To a certain extent this method was successful, but in some cases poliomyelitis has been produced by injection of the dried cords. Flexner and Lewis, by giving injections of diluted virus, were able to make monkeys immune to many times the lethal dose.

Flexner and Clark found the immunity principle to exist, both in the blood and cerebro-spinal fluid, soon after an attack of poliomyelitis. After one to two months the cerebro-spinal fluid lost its immunity principles, but it remained in the blood for years.

Hexamethylenamine given by the mouth delays, and may prevent, infection (Flexner and Clark). Kraus found that saline emulsion of brain and cord of a monkey, treated for five days with 1–1½ per cent. carbolic, is no longer infective on subcutaneous injection; 10 c.c. of virus thus sterilised, injected subcutaneously, protects animals against a subsequent subdural infection. Serum which is viricidal *in vitro* does not confer protection when injected subcutaneously.

SERUM DIAGNOSIS.

1. *Experimental method.*—Levaditi and Landsteiner, and Müller have shown that it is possible to test the serum of patients and monkeys for their viricidal properties. For this purpose a 5 per cent. emulsion of the spinal cord containing the active virus is mixed with an equal quantity of the serum to be tested. The mixture must be made at a temperature of 34° C., and stood at room temperature for several hours. It is then injected intracerebrally in quantities of 0·6–0·8 c.c.

into a normal monkey. A control monkey receives the same quantity of the virus. The control monkey becomes infected, the other monkey remains free. This experiment has been tried with the blood of patients who have had herpes zoster, but the experiments were inconclusive, as the control monkey was not affected (Müller).

Anderson and Frost found that the blood serum, in six out of nine suspected cases of abortive poliomyelitis, was viricidal against the virus of the poliomyelitis. Landsteiner, Levaditi, Leiner, and Wiesner have all shown that the serum is viricidal *in vitro*, but not *in vivo*. The serum injected into animals has no preventive or curative effect.

2. *Deviation of the complement method.* — This point has been investigated by Wollstein, Roemer, Joseph, Levaditi, and Landsteiner. All these observers agree that the use of an extract of organs containing the virus as antigen does not permit the discovery of antibodies in the serum or cerebro-spinal fluid.

"Breeds" of Virus.

It is essential before discussing "breeds" of viruses to understand how the words "breeds," "races," and "strains" should be used. The word "breed" is used to indicate a variation in character of the virus. The word "races" should be used in the same sense. Flexner and Clark have used the word "race" to indicate increased or decreased virulence of the virus as applied to monkeys and man. The word "strain" is used to indicate a variation in the source from which the virus is obtained.

Levaditi has brought forward evidence to show that there are differences between the viruses obtained from different sources. So far two breeds are known—the virus of Landsteiner, Vienna, and the virus of Flexner, America. Levaditi has shown that the virus of Flexner is neutralised *in vitro* by the serum of a monkey which has been rendered immune to the Flexner virus. It is not neutralised by the serum of a monkey rendered immune to the Landsteiner virus. On the other hand, the virus of Landsteiner is neutralised by the serum of a monkey rendered immune to the Landsteiner virus, but it is not neutralised by the serum from a monkey rendered immune to the Flexner virus.

The Flexner virus is more virulent than the Landsteiner virus. It remains to be proved if the English virus differs from the above two. No one in England has succeeded in transmitting the disease from an English strain to a monkey.

Flexner and Clark state that they have succeeded in implanting upon monkeys all the ten strains of human virus which they have examined. That is to say, monkeys have been infected from ten human cases. These authors state that other experimenters have only been able to implant about one half of the human strains of poliomyelitic virus upon monkeys. In order to succeed in all instances it is necessary to inoculate emulsions of the human spinal cord, and preferably to make double inoculation into the brain and peritoneal cavity.

The human strains of the virus not only infect monkeys less readily than do the modified or monkey strains, but the experimental disease produced by them is less severe and less fatal. After the strains have once become wholly adapted to the monkey the paralytic disease appears in a more severe form, and the degree of infectivity rises, so that exceedingly minute doses of a filtrate are capable of producing constant infection.

Elimination of the Virus.

Levaditi and Landsteiner have found the virus in the salivary glands. It has not been found in the saliva. Flexner and Lewis have found the virus in the mucous membrane of the nose of a monkey killed during the acute stages of the disease. Osgood and Lucas have found it in this situation six months after the onset of the disease. Leiner and Wiesner showed that the nasal mucous membrane became infected on the second day after injection. The virus has not been found in the urine, fæces, kidney, or intestinal mucous membrane.

Flexner and Clark found the virus to be present in the tonsils and pharyngeal mucosa of a patient who had died during the acute stages of poliomyelitis. They obtained successful experimental results by preparing an emulsion of the tonsil with 0·5 per cent. solution of carbolic acid.

Distribution of the Virus outside the Body.

So far the only evidence upon this subject is that furnished by Neustaedter and Thro, who examined the dust in rooms in which cases of poliomyelitis had been nursed. After many failures they succeeded in producing poliomyelitis in a monkey with the filtrate of macerated dust in salt solution. They conclude, therefore, that poliomyelitis is propagated by dust, and that the naso-pharynx is probably the point of entry.

Flexner and Clark have shown that flies can harbour the virus in their bodies in a living and infective state for at least 48 hours.

Types of Experimental Poliomyelitis.

All the usual types of poliomyelitis as seen in man have been reproduced experimentally in monkeys. There is the ordinary type with flaccid paralysis of one or more limbs, the ascending type, the cranial type, the abortive type. The "jumping" type has also been observed in monkeys, and Roemer gives the history of a monkey paralysed on the twelfth day which showed considerable amelioration at the end of the sixteenth day; but three weeks afterwards it had a relapse and died two days after being ill.

Pathological Changes Found in Experimental Poliomyelitis.

The changes found in the brain and spinal cord in experimental poliomyelitis do not differ from those found in natural infection. In the spinal cord the lesions are usually more severe and widespread than in the brain. The meninges usually show a more or less diffuse infiltration with round cells. The layers immediately next to the white matter of the cord tend to show more cells than the layers next the dura mater.

The greatest accumulation of cells is about the arteries and veins, the sheaths of which are surrounded by cells. The effect of these cells on the lumina of the smaller vessels is considerable.

The meningeal cellular invasion is only interstitial, and does not give rise to an exudate upon the surface of the cord or brain such as occurs in acute exudative inflammation.

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A New Obstetrical and Gynæcological Society.—A meeting will be held at the Grand Hotel, Birmingham, on Tuesday next, Feb. 20th, at 5.30 P.M., to found an Obstetrical and Gynæcological Society embracing the Midland, Eastern, and Western Counties of Great Britain. The meeting will have the following agenda before it: (1) To consider the name of the proposed society; (2) to form rules and by-laws; (3) to arrange time and places of meetings; (4) to elect officers and council for 1912–13; (5) to dispose of such other business as may arise. At 7 P.M., after the meeting, a dinner will take place, the price of which, exclusive of wine, will be 7*s.* 6*d.* An early reply as to intention to be present or desire to join the society should be made to Mr. H. Beckwith Whitehouse, 52, Newhall-street, Birmingham), who is acting as honorary secretary (*pro tem.*) to the movement. A letter has already been circulated, signed by Dr. Edward Malins, Dr. Christopher Martin, Dr. Thomas Wilson, Dr. C. E. Purslow, Mr. Frederick Edge, Mr. J. Furneaux Jordan, Mr. Smallwood Savage, Dr. John T. Hewetson, Dr. Ann E. Clark, Dr. Mary D. Sturge, and Mr. Beckwith Whitehouse, these representative gynæcologists practising in Birmingham believing that the time has arrived for the formation of a new Obstetrical and Gynæcological Society embracing the Midland Counties, and, if sufficient support be obtained, including also the West of England and perhaps the East. To this letter many favourable replies have already been received.

SOME FORMS OF HÆMORRHAGE WHICH ARE DIFFICULT OF EXPLANATION.[1]

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As I have been much interested in certain forms of hæmorrhage, I have taken this subject for consideration. Usually the explanation of the bleeding is easy—for example, an aneurysm ruptures, or tubercular ulceration eats into a vessel and the patient has hæmoptysis, or under the stress of a heightened blood pressure a diseased cerebral vessel gives way. It is not difficult to suggest why bleeding should follow an infarct, nor why when the vessels generally are greatly over-full it should occur in polycythæmia, nor why when they are locally over-full, as those of the portal area may be in cirrhosis, the patient should have hæmatemesis. It is easy to understand why, as the coagulation of the blood is greatly retarded in those who suffer from hæmophilia, minute injuries to vessel walls should lead to serious hæmorrhage.

When an occurrence is common we become so familiar with it that we are inclined to forget that we do not understand it. Rarely do we stop to reflect how extraordinary it is that if one ciliary muscle is paralysed as a result of diphtheria so is the other; if one anterior tibial nerve is inflamed by alcohol so will the other be. In the same way many varieties of hæmorrhage with which we are quite familiar may well cause much thought.

Let us first direct our attention to purpura. Here the bleeding is under our very eyes, and one thing is quite certain—namely, that the red cells cannot come through the walls of the vessels unless there is a solution of the continuity of those walls. No amount of talk about coagulation can explain hæmorrhage; deficient coagulation may explain why bleeding does not stop but not why it began; for it to begin there must be damage to the vessel walls sufficiently great to let blood corpuscles through. Purpura may occur as a result of giving a patient drugs—notably iodide of potassium, chlorate of potassium, and copaiba—by the mouth. It is difficult to resist the belief that these poisons, or derivatives from them, circulating in the blood lead to damage of the walls of the cutaneous vessels and consequent purpura. In the same way poisons or toxins circulating in the blood and causing local damage to minute vessels probably explain why septicæmia and some of the exanthemata are occasionally purpuric, although here it may possibly be that the micro-organisms themselves cause the bleeding either directly or by the formation of infarcts. Purpura is met with in scurvy, cirrhosis of the liver even if there is no jaundice, severe jaundice, and after the administration of serum, and in each instance it is extremely likely that there is some poison circulating in the blood which damages the minute vessels of the skin. Acute rheumatism, a common cause of purpura, is certainly a specific fever, and therefore the purpura may be toxic, as it may be in the exanthemata. Inasmuch as there must be a solution of vessel walls for the production of purpura, and several drugs cause purpura, we may assume that these drugs or their derivatives circulating in the blood act on the minute vessels so as to cause a solution of continuity and consequently hæmorrhage, and as no better explanation is forthcoming for purpuras—e.g., purpura hæmorrhagica and Henoch's purpura, in which there is no direct evidence of a toxin which damages vessels—we may, as here also there must be a solution of continuity of minute vessels, assume, without violent improbability, that in these varieties of purpura there are circulating in the blood toxins which can damage vessels in this way. It has been stated that the seat of the hæmorrhage in purpura is in the minute veins just at the point where they leave the subcutaneous tissue and enter the skin proper; they are especially weak at this point, hence when damaged they give way there.

In all purpura there must be a damage to vessels, and very often this damage extends to the vessels of other regions than the skin. Thus we have hæmorrhages into the gums and muscles in scurvy, gastro-intestinal hæmorrhages in Henoch's purpura, and epistaxis with internal hæmorrhage in many places in purpura hæmorrhagica, and internal hæmorrhages in jaundice. We have indication that some poisons damage some vessels more easily than others—for example, purpura is rare in scurvy, but hæmorrhages into the gums and muscles are common. In most cases of purpura hæmorrhagica bleeding takes place only into the skin; and in cantharides and turpentine poisoning, although the poisons must circulate in the blood to reach the kidneys, yet the damage to the vessels is usually confined to those of the kidney with consequent hæmaturia. When a poison circulating in the blood commonly selects some particular structure on which to act, we must assume that the chemical or physical nature of that structure is different from that of otherwise similar structures in such a way that the poison can produce results on it and not on them. For example, there must be some chemical or physical difference between the anterior tibial and musculo-spiral nerves, or else it could not be that if alcohol is going to cause neuritis it invariably picks out the anterior tibial most easily; on the other hand, if lead is going to cause a neuritis it almost invariably picks out the musculo-spiral before other nerves. In the same way there appear to be differences in the walls of the vessels in different parts, for some poisons circulating in the blood stream damage some vessels, and others damage others.

Having called attention to the fact that hæmorrhages under the skin may occur quite apart from any gross cause, that hæmorrhages inside the body may be associated with hæmorrhages into the skin, and that certain poisons act on particular vessels so as to cause them to rupture, let me now direct your thoughts to some mysterious internal hæmorrhages: by far the most remarkable is menstruation. The fundamental fact is that at stated periods the walls of the vessels of the uterine mucous membrane undergo some change which enables the blood to burst through. What this change is we do not know; some have spoken of it as a degeneration, but considering that the phenomena of menstruation and heat are normal it is doubtful whether degeneration is the right word; but at any rate in a few days the vessel wall undergoes an alteration which leads to a weakening, the blood ruptures into lacunæ in the uterine mucous membrane, and tearing through the epithelium passes into the uterine cavity. We know that the menstrual flow is controlled by a hormone secreted by the ovary, for excision of both ovaries is followed by a cessation of heat or menstruation, and there is considerable evidence that the transplantation of an ovary from another subject into one who has ceased to menstruate as a consequence of the loss of both ovaries will restore heat or menstruation. This function of the ovary is not derived from the corpus luteum, but it is not decided whether it is dependent upon the follicular epithelial cells or the interstitial cells. Formerly it was commonly believed that menstrual flow could take place from other organs than the uterus, and the belief has hardly died out. As recently as 1897 Oser stated that this might occur, and, indeed, it is admitted in a very recent text-book, but I think you will agree with me there is no real evidence in favour of vicarious menstruation, and therefore we must conclude that the substance secreted by the ovary which is carried by the blood to the uterus, where it causes such a change that the blood in the uterine vessels can rupture them, acts on the uterine vessels only, a fact which strongly suggests that the uterine vessels are different from other vessels, and which harmonises with the opinion expressed a few minutes ago that the most satisfactory explanation of some forms of pathological bleeding is to believe that it is caused by the circulation in the blood of toxins which act in particular on the walls of the vessels through which the blood ruptures.

I should now like to direct attention to some facts which support the belief that pathological hæmorrhage due to some substance circulating in the vessels and damaging the walls of the minute vessels may occur inside the body only. Everyone with even a moderate experience of work in the post-mortem room must be familiar with subpleural ecchymoses and those which occur in the alimentary tracts especially the stomach. Among 2246 post-mortem examinations I find them noted in 172, and of these 68 were performed upon those dead of an acute infective disease, such as pneumonia or pyæmia. In some instances these ecchymoses might be caused by obvious emboli, backward pressure, high blood pressure, or arterio-sclerosis, but a very large number remain in which no such explanation holds, and it is quite possible that some toxin damages minute vessels, but it may be that micro-organisms acting locally

[1] Abstract of an address given at the annual meeting of the past and present students of the University of Durham College of Medicine, held at Newcastle-on-Tyne on Feb. 6th, 1912.

are the cause. Let us next consider the condition to which the term gastrostaxis has been applied. Many authors have been struck with the frequency with which young women vomit blood—for example, Dr. E. W. Goodall found that out of 36 cases of hæmatemesis under 30 years old 27 were women and 9 were men. Formerly, this was ascribed to vicarious menstruation; when this explanation was discarded these bleedings were considered to be due to gastric ulcer, and accordingly we were taught that gastric ulcer was far commoner in women than in men, and it was especially seen in young women. But suspicion as to the correctness of this view was aroused by the facts that in men gastric ulcer was commoner at a considerably older age, and gastric ulcers found in the post-mortem room were no commoner in women than in men. Then several cases were operated on for hæmatemesis and no ulcer was found, and cases were published in which a careful search after death had failed to demonstrate the presence of any ulcer. When such a case was examined during life the blood was seen by several surgeons to be oozing from many minute points usually grouped together.

That there is a disease far commoner in young women than in older women or men characterised by dyspepsia, pain, vomiting, and hæmatemesis is allowed by most recent authors who have written on the subject. I have published many such cases.[2] Since I did so others have come to my notice. Dr. A. E. Boycott has given me particulars of a woman, aged 35, who had indigestion with severe hæmatemesis in 1905, and in 1906 when it was nearly fatal the stomach was opened, and all that was seen wrong was a large area of congested bleeding mucous membrane. Mr. J. S. Watson tells me of a woman, aged 25, who for many months suffered from pain in the stomach, nausea, vomiting, and hæmatemesis. She was thought to have a gastric ulcer, but on opening the stomach at an operation no trace of an ulcer or cicatrix could be found. Hæmatemesis and melæna have continued since the operation. A woman, aged 44, had been in Guy's Hospital on many occasions for pain, nausea, vomiting, and hæmatemesis; she died outside. The late Mr. W. F. Hearnden sent me the stomach. I could find no trace of any ulcer or cicatrix. A man, aged 36, seen with Mr. A. H. Card. Hæmatemesis and melæna were so severe that we thought he had a duodenal ulcer. At an operation Mr. Arbuthnot Lane examined the stomach and duodenum most carefully, but no sign of an ulcer could be seen. This condition has been called gastrostaxis and the explanation of it that has always appealed to me has been that the disease consisted in a giving way of the walls of minute vessels, that blood first effused under the gastric epithelium broke through this and hence the bleeding. If this view is correct we must suppose the weakening of the blood-vessels to be due to an endothelial toxin and then these cases are allied to the conditions previously mentioned in this paper, in some of which, e.g., purpura hæmorrhagica, hæmatemesis is by no means uncommon; we should then have purpura hæmorrhagica a disease in which an endothelial toxin acted on the vessels in several situations, and gastrostaxis a disease in which an endothelial toxin acted only on the vessels of the stomach and occasionally on those of the intestine, for sometimes the bleeding occurs also in the intestine. Thus Dr. A. G. Gullan[3] reports the case of a girl who had all the symptoms of gastric ulcer, including hæmorrhage; she died suddenly. The stomach showed numerous small hæmorrhagic erosions scattered over its surface, which was congested in certain places; similar erosions were found in the duodenum and jejunum and there were subperitoneal hæmorrhages. Dr. W. P. Herringham also records cases in which the bleeding occurred from the duodenum as well as the stomach, and I have recorded some.[4] As the blood bursts through the gastric epithelium there must be minute erosions, and Dr. C. Bolton, while he agrees that there is a condition most often seen in young women and characterised by dyspepsia, pain, vomiting, and hæmatemesis, inclines to the belief that some or all instances of gastrostaxis are really instances of minute gastric ulcers. The matter is not easy to decide, for the difference between minute ulcers and minute erosions is difficult to make out without the most careful microscopical examination; and the opportunities of this are few, for surgeons have rightly largely given up opening the stomach for gastric hæmorrhage, and the condition we are describing is rarely fatal; but at any rate it must be admitted that an endothelial toxin is quite a likely explanation for these cases, and it would perhaps best explain the cases in which the oozing of blood occurred in other parts of the alimentary tract than the stomach. Further, the possibility that a toxin causes the hæmatemesis is supported by Dr. J. J. Pringle's[5] and other cases of urticaria accompanied by hæmatemesis, for urticaria is often toxic.

Many a time it has happened that a physician or surgeon has, on account of hæmaturia, thought that a stone or new growth existed in the kidney, but a most careful exploration, or in some cases excision, of the kidney has failed to find any satisfactory explanation for the hæmaturia. These are examples of what has been called renal epistaxis, or, to use a phrase more widely employed, essential renal hæmaturia. There are so many causes for hæmaturia that scepticism as to the existence of essential renal hæmaturia is justifiable, but there is no doubt that it exists. I have recently collected several cases.[6] Senator says: "There still remains a group of cases in which nothing can be found in the kidneys to account for the hæmorrhage." Herrick gives the case of a man aged 45, who had had hæmaturia for ten months. The cystoscope showed that the blood came from the right kidney; nephrotomy revealed nothing abnormal. The kidney was healthy histologically. Klemperer describes the case of a young man aged 22, who had hæmaturia which proceeded as shown by the cystoscope from the left kidney. Nephrectomy was done and the kidney was perfectly healthy both to the naked eye and microscopically. Wulff and Schenk describe similar cases, the bleeding coming from only one kidney, which both to the naked eye and histologically was normal. I could quote other cases from medical literature; they will be found in the article on essential hæmaturia to which I have referred. I have carefully read the whole of the literature to which I have access in London, and I think there is no donbt that bleeding may take place from the kidney without there being any evidence to the naked eye or microscope that the organ is diseased. For example, a woman, aged 35, was admitted under Mr. C. J. Symonds for profuse hæmaturia; it appeared that the blood came from the right kidney. This was excised; it was healthy both to the naked eye and histologically. I wrote to the patient 27 months after the operation, and she said that her health and weight had improved greatly; she had had during this time one attack of hæmaturia presumably from the other kidney. This condition occurs both in women and men, but more often in men. The patients are usually under 30; it is very rarely fatal. I submit that the most feasible explanation of these cases is that in them a poison—analagous to the menstrual hormone—is formed somewhere at intervals, and this reaching the kidney by the blood, and having a special affinity for the minute renal vessels so damages them that they rupture and the blood escapes; if this is so these cases have the same explanation as those of bleeding from other parts of the body which we have been considering.

It is well known that hæmatemesis is an early symptom of splenic anæmia and that it occurs long before the final stage of hepatic cirrhosis. May it not be that here we have absorbed from the spleen and carried to the stomach by the blood, a toxin having the property of damaging the gastric vessels and so letting blood through and causing hæmatemesis?

I have left till last the mention of epistaxis, for I have very little experience of it unless as a complication of well-known disease, but there is a very widespread belief that it is especially common in boys at the age of puberty who are perfectly healthy. If this is so, it seems difficult to resist the explanation that the epistaxis is due to the circulation in the blood of an unknown substance which has the special property of damaging the vessels of the nasal septum so as to cause hæmorrhage from them.

I hope you will not consider this address too fanciful, but with the strong evidence we have that the menstrual flow is provoked by a hormone secreted by the ovary, it seems to me worth while to consider whether any pathological hæmorrhages might not be produced in a similar way, and I think it possible that they may, being caused by endothelial toxins which act on the walls of the vessels from which the bleeding comes.

Wimpole-street, W.

[2] Gastrostaxis, THE LANCET, Nov. 3rd, 1906, p. 1189.
[3] The General Practitioner, Dec. 8th, 1906.
[4] St. Bartholomew's Hospital Reports, vol. xliv.
[5] Transactions of the Clinical Society of London, vol. xviii., p. 143.
[6] Essential Renal Hæmaturia, Quarterly Journal of Medicine, vol. iv. No. 16.

MALIGNANT DISEASE OF THE TESTICLE AND THE TREATMENT OF IT BY RADICAL OPERATION.

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TUMOURS of the testicle, owing to their peculiar and complex pathological characteristics, have been much described and frequently and variously classified. Yet our knowledge of the morbid anatomy of malignant disease of this organ increased very slowly until Nicholson in his admirable paper, "New Growths of the Testicle,"[1] described the macroscopic and microscopic appearances of 63 specimens from the Guy's Hospital Museum and gave a lucid and comprehensible grouping of the various tumours.

It may here be said that "tumours" is used as synonymous with malignant disease, since with the rare exception of fibroma and adenoma, the existence of which is not universally recognised, all neoplasms of the testicle are malignant in a greater or less degree. The following classification of tumours is based mainly on the work of Nicholson:—

Embryoma	Solid.	
	Cystic (dermoids).	
Carcinoma	Encephaloid	Alveolar.
		Non-alveolar.
	Scirrhus.	
Sarcoma	Round celled (lympho-sarcoma).	
Endothelioma	Lymph-endothelioma.	
	Hæm-endothelioma.	

Apart from the endothelioma each of the three types is claimed by different authors as the commonest form of neoplasm of the testicle.

Embryomata are composite tumours containing elements derived from epiblast, mesoblast, and hypoblast, and are developed in the body of the testicle, probably in the region of the rete testis, and not in the epididymis, although this part of the organ may be included later by the growth. The origin of these tumours is not absolutely determined, but Nicholson says: "There can be no doubt that these tumours which contain derivatives of the three blastodermic layers must have originated in a cell which is analogous to an ovum (including a spermatozoon) or one of its earliest divisions—i.e., a cell which is still capable of producing the three primary layers of the embryo" (p. 308). At first benign, any or all of the component parts may undergo malignant change. When two or more layers are so affected a mixed tumour is the result; when hypoblast alone, the tumour assumes the characters of a columnar-celled carcinoma; when mesoblast alone, of a sarcoma or myxo-sarcoma; when epiblast alone, of a dermoid or of a growth closely resembling a chorion-epithelioma.

Nicholson further emphasises the fact that "not only may one layer be greatly in excess of the others, but one tissue may assume this supremacy" (p. 304). One case which he quotes in illustration "consists almost entirely of striped muscle." He continues: "To distinguish these tumours from dermoids, they are called solid embryomata, whereas dermoids are known as cystic embryomata" (p. 304). Nicholson further points out that "the chief point which distinguishes these 'cystic' from the 'solid' embryomata is the comparatively high degree of development which their structures have obtained" (p. 304).

When two only of the three layers are found in a mixed tumour the missing layer is generally the epiblast, the reason of which may be aborted development or incomplete examination. In a few cases, however, the epiblast is represented not only by areas of stratified epithelium and cell nests, but also by elements of a chorion-epitheliomatous nature. It is now generally held that the presence of syncytium and of Langhans's cells does not imply the inclusion of fœtal membranes, and that they are developed from the epitheliomatous cells of the epiblast.[1 2]

The solid embryomata may in macroscopic section appear as solid tumours, as solid tumours containing cystic spaces, or the whole body of the tumour may be converted into cysts of varying size separated by strands of fibrous tissue. In all cases the tumour is surrounded by the tunica albuginea, usually thickened, and the epididymis is to be found on the posterior aspect unaffected, compressed by the growth or occasionally incorporated into the tumour. These embryomata are classed by Bland-Sutton under the name of cystic disease of the testicle.[3]

The cystic embryomata or dermoids are very rare and differ from the preceding in that they show a highly differentiated structure; they are composed of a thick-walled cyst containing embryonic rudiments, teeth, hair, sebaceous matter, portions of the nervous system, &c. Barrington has described what is probably a unique case of a dermoid cyst associated with a new growth, and suggests that "the tumour has arisen in a teratoma from some hypoblastic structure."[4]

Foulerton[5] regards columnar carcinoma as the commonest form of malignant disease of the testicle, but Nicholson is of opinion that all the cases of columnar carcinoma are in reality teratomata, and recognises only encephaloid carcinoma which he subdivides into the alveolar and non-alveolar forms, and scirrhus carcinoma, which latter is very rare.

Sarcomata develop from the intercanalicular connective tissue, and are regarded by Aschoff[6] as the commonest variety of testicular neoplasm. They are mostly of the round-celled type known as lympho-sarcoma. Ewing states that "the disease is distinguished in the majority of cases by the involvement of both testicles, by its rapid course, by the development of multiple metastases, specially in the skin, and by its histological structure which resembles a lympho-sarcoma."[7] Sarcomata are very liable to degenerate and to increase suddenly in size as the result of hæmorrhages into the degenerated areas.

Endotheliomata do not present characteristics which differ materially from such tumours developing in other organs.

Diagnosis.

A patient with malignant disease of the testicle may present himself with all or most of the symptoms and signs distinctive of a growth of that organ, but it is by no means a rare occurrence that the clinical manifestations are so uncharacteristic that the nature of the disease, or even the seat of the primary lesion, is not recognised. It is therefore necessary to describe: A. The clinical picture characteristic of a growth of the testicle. B. Certain aberrant types in which the difficulties in diagnosis are due to: (1) the nature of the history; (2) the presence of a hydrocele; (3) the degeneration of the growth; (4) the patient seeking advice on account of symptoms produced by the secondary growths.

A. *The Clinical Picture Characteristic of a Growth of the Testicle.*

The patient seeks advice on account of a swelling which he has noticed for some months. Pain is rarely a prominent feature. There is a previous history of venereal disease in the majority of the cases and sometimes of trauma.

Physical Signs of the Tumour.

Position.—Russell Howard[8] found that 15·7 per cent. out of 57 cases of undescended testicle had malignant disease of that organ. The testicle has been more often affected when imperfectly descended than when retained in the abdomen. On the other hand, no case of malignant disease of a testicle misplaced in the perineum has been recorded. In a normally placed testicle the tumour is entirely scrotal, or fills the scrotum and reaches up to the external abdominal ring.

Size, shape, outline, surface.—The size varies from that of a hen's egg to that of a cocoanut. The characteristic shape is oval, but there may be one or more rounded bosses projecting from the surface due to the presence of degeneration in the tumour or of fluid in the tunica vaginalis. The outline is well defined, smooth, and rounded. Posteriorly the epididymis may be felt firmly attached to the growth but not involved by it; with increase in size of the tumour the epididymis becomes increasingly compressed and incorporated in the growth. In the later stages when the growth has spread through the tunica albuginea the surface of the tumour becomes irregular and the outline of this part less well defined. The surface of the growth, even when completely enclosed in the tunica albuginea, is always slightly lobulated.

Consistence.—The tumour, apart from any associated hydrocele, may give the feel of a hard or soft solid, or of an elastic or fluctuating mass. Not infrequently the consistence of the tumour varies in different parts. This is specially the case when the growth is degenerating.

Translucency.—An associated hydrocele will be translucent, but the growth is opaque. This examination is useful when there is difficulty in determining how much of a swelling is due to an overlying collection of fluid in the tunica vaginalis.

Sensibility.—Pain is rarely a predominant feature unless the scrotum is implicated. There is a surprising absence even of tenderness. Testicular sensation may occasionally be obtained from the posterior part of the swelling.

Attachments.—Except when the growth has ulcerated through the tunica albuginea the tumour is freely moveable.

Weight.—Much importance is laid in text-books on the weight of a testicular tumour; "as heavy as a stone," &c. Any dependent swelling feels heavy and a tumour weighs more than an equal bulk of water, but not necessarily more than any other solid enlargement of the testicle, and too much reliance should not be placed on this sign as of diagnostic value.

Cord.—The vas is rarely affected, but an irregular lobulated thickening due to extension of the growth may sometimes be felt occupying the lower part of the cord. The vessels of the cord may be enlarged or increased in number, and this can be recognised clinically by a uniform increase in the size of the cord and occasionally by an exaggeration of the pulse in the artery of the vas on the affected side.

Scrotum.—This shows no abnormal change except in very advanced cases when the growth has become adherent to the skin.

Rectal examination.—No change, the result of the neoplasm, is to be detected by palpation of the lower end of the vas and the vesiculæ seminales.

Glands and secondary deposits.—The lymphatics of the testicle run to the lumbar glands round the aorta and vena cava, and it is therefore the upper part of the abdomen that must be particularly examined for evidences of glandular involvement. In the later stages glands in the posterior triangles of the neck or in the inguinal region may become implicated. The inguinal glands are not affected primarily except when the scrotal tissues are invaded by the growth. In cases of sarcoma the metastases are probably disseminated by the blood stream; deposits may therefore be found in any part of the body.

B. *Aberrant Types.*

1. *The nature of the history.*—An embryoma may not develop malignant characteristics for many years. The length of the history, dating it may be even from early childhood, must not be regarded as a point against malignant disease; indeed, if there has been any increase in the size of the swelling other than that due to hydrocele, or if the tumour has become painful, the length of the history should directly suggest that the testicle is the seat of an embryoma. When there is a history that the increase in size was first noticed after an injury, and specially when the swelling has been subsequently tapped and clear or blood-stained fluid withdrawn, the condition may be mistaken for a hæmatoma.

2. *The presence of a hydrocele.*—Hydrocele complicates growth in the great majority of cases. The hydrocele may exist at one pole of the tumour only. There may be a collection at either pole united by an isthmus, or the tunica vaginalis contains a small quantity of fluid evenly distributed. None of these cases should present any difficulty as the result of the fluid; but when the tumour is comparatively small and the hydrocele sufficiently large to envelop the testicle the increase in size of the latter may be very difficult to detect.

3. *The degeneration of the tumour.*—Degeneration of the growth when slight causes one or more areas of softening in the tumour, but when a large part of the growth has broken down that part acquires the characters of an opaque elastic cyst. It occasionally happens that the whole anterior part of the tumour is thus affected, while the posterior part retains its former irregular outline. The appearance produced then closely resembles that seen in advanced tuberculous disease of the testicle, with the hard, irregular epididymis lying behind, and the body, enlarged by extension of the disease, in front. In such cases the real nature of the condition may not be suspected until the operation. Syphilis produces a lobulated tumour with areas of softening, but the lobulation is in these cases much more pronounced and the softening due to the breaking-down gumma is more precisely confined to one or more lobule. The softened areas of a degenerated growth do not become adherent to the overlying parts; a breaking-down gumma does.

4. *The patient seeking advice on account of symptoms produced by secondary growths.*—In certain cases the symptoms complained of are those due to the enlargement of the lumbar glands which, pressing on the aorta and vena cava, their branches and tributaries, or on the organs which lie in contact with the affected glands, specially the duodenum and stomach, give rise to a train of symptoms quite unsuggestive of any lesion of the testicle. The patient may not call attention to the primary growth for one of two reasons: either the testicle and tumour have been removed some time previously and the possibility of any association between the present and past illness does not occur to the man, or the enlargement of the testicle, being painless and of long standing, does not cause sufficient disturbance to impress the patient with the necessity of directing attention to the condition. In all cases, therefore, where abdominal symptoms are associated with a tumour of an obscure nature the possibility of a neoplasm of the testicle must be kept in mind.

Prognosis.

Malignant growth of the testicle is a most fatal disease. A tumour known to have been present for many years may at any moment assume a malignant character and cause death in a comparatively short space of time. Chevassu[9] has collected the statistics of 100 cases treated by castration; of these, 81 died and 19 were cured. His figures are as follows:—

Died, 81.		*Cured, 19.*	
Within 1 year	38	Alive 4 to 5 years after ...	4
,, 2 years	17	,, 5 ,, 6 ,, ,, ...	4
,, 3 ,, ...	9	,, 6 ,, 7 ,, ,, ...	5
,, 4 ,, ...	2	,, 7 ,, 8 ,, ,, ...	1
Date uncertain	15	,, 8 ,, 9 ,, ,, ...	3
		,, 9 ,, 10 ,, ,, ...	2

Early diagnosis and the removal of the testicle with the lymphatics and surrounding fascia and the glands in the lumbar region offer the only hope of decreasing so appalling a mortality.

Treatment.

Very slowly has it dawned upon surgeons that malignant growths of the testicle should be treated in the same rational manner as malignant disease of the tongue or breast—so slowly, in fact, that since Grégoire[10] did the first complete radical operation in 1905 only 12 cases treated in this manner have been recorded. At the present time every surgeon recognises the imperative necessity of removing the glands and lymphatics (with the surrounding fascia) which drain an area, such as the tongue or breast, the seat of a malignant growth; and the enucleation of the infected glands in such cases is regarded in almost the same light as attempting no gland operation whatever "because there is no clinical evidence of involvement." There is no reason why the same radical treatment should not be adopted in cases of malignant disease of the testicle; that the glands are at a distance from the primary growth and need a much greater amount of care and trouble to remove is no contra-indication whatsoever. It is quite feasible (and the danger of the operation is incomparably small compared with that of recurrence when the testicle only is removed) to take away the testicle, cord, the artery and veins of the vas up to their origin from the aorta and entry into the vena cava or renal vein, the lymphatics draining the testicle, the glands into which they drain, and the surrounding fascia in one piece. The heavy mortality from recurrence in cases of simple castration, the proportionate frequency with which glands that could not be felt clinically and apparently normal macroscopically have been found on microscopic examination to be invaded by growth, should be sufficient to make the radical operation the routine procedure,

Before giving details of the operation a fuller understanding of the lymphatics of the testicle is necessary. Numerous experiments have been made by the injection of coloured fluids and dissections by Jamieson and Dobson,[11] Most,[12] and Cunéo.[13] These researches have shown that the glands which are in direct communication with the testicle lie on either side, over, and between the inferior vena cava and the aorta usually between the level of the bifurcation of the aorta below and the renal veins above, but that occasionally

a gland may be found as low as the bifurcation of the common iliac, and as high as just above the renal veins. From this group of glands lymphatics pass out laterally, upwards and downwards to other glands, the uppermost of which are in close relation to the receptaculum chyli. From clinical evidence (and the ease with which injected substances pass through the primary into the secondary group of glands) it seems that the secondary outlying groups may be infected soon after the primary ones have become diseased. Certain it is that when once the glands have become palpable dissemination of the disease progresses rapidly.

The secondary glands lie so high up in the abdomen and are so covered by the duodenum, pancreas, &c., that they are very difficult of access. So long as the diagnosis of growth of the testicle is made fairly early, and the radical operation is undertaken before the primary group of glands is extensively implicated, it is sufficient if these only are removed. The lymphatics of the primary group connected with the right testicle lie to the outer side and over the vena cava, between it and the aorta, and over the right half of the aorta, while those connected with the left testicle have no relation to the vena cava but lie over and on the left side of the aorta. The glands have been removed by the intraperitoneal and the extraperitoneal routes; the latter is undoubtedly preferable.

The Radical Operation.

The incision which has been most often employed to allow of removal of the testicle and cord and to give access to the lumbar glands commences over the upper part of the scrotum, extends up to the external ring, along the inguinal canal, and is prolonged to a point half an inch above the anterior superior spine; the incision then curves upwards till it reaches the costal margin at the level of the tenth rib. At the beginning only the first part of the incision to the external ring is made and the testicle and cord are dissected free. If there is any doubt as to the diagnosis the testicle should be incised at this stage. If malignant disease is present the operation is continued. The incision is prolonged in the direction defined above and carried through the muscles of the abdominal wall until the peritoneum is reached. The cord is traced till it passes through the internal abdominal ring, and then while the sides of the incision are strongly retracted slight tension is applied to the cord so that its further course may be easily recognised. In its retroperitoneal course the vas is adherent to the posterior aspect of the peritoneum and the next stage in the operation consists in freeing the cord and reflecting the peritoneum mesially. The cord is traced down well into the true pelvis and there divided between two ligatures, the cut surfaces being treated with the cautery or pure carbolic. This may be regarded as the first stage in the operation and requires no extraordinary care. The second stage consists in the free dissection of the fascia over part of the iliacus and psoas muscles together with the contained spermatic vessels and lymphatics and the removal of the glands from off the inferior vena cava and aorta.

When the vas has been divided the spermatic vessels are seen no longer to form a rounded bundle but to become spread out. It is therefore necessary to make a wide dissection of the fascia. On the outer side this should extend to the outer border of the psoas. On the inner side the line of division of the fascia should pass mesially so as to cross the common iliac at its bifurcation; the ureter will here be encountered and must be freely exposed. The dissection is then carried along the inner side of the common iliac vessels up to the bifurcation of the aorta. When the left testicle is affected the inner boundary is carried up along the right border of the aorta, and special care must be taken not to injure the inferior mesenteric artery. When the right testicle is the seat of the tumour the inner border is continued over the middle of the aorta. In both cases the upper limit is the upper border of the renal veins. Between these boundaries all fascia, lymphatics, and glands must be removed. During the dissection the spermatic vessels are traced up to their junction with the main vessels and must be ligatured and divided. When all bleeding points have been secured the peritoneum is allowed to return into position, and the abdominal wound is closed without drainage, each of the muscles being stitched up separately.

Up to the present published results show that the radical operation for the complete removal of the testicle, glands, and lymphatics, with adjacent fascia, in one mass has been done 12 times.*

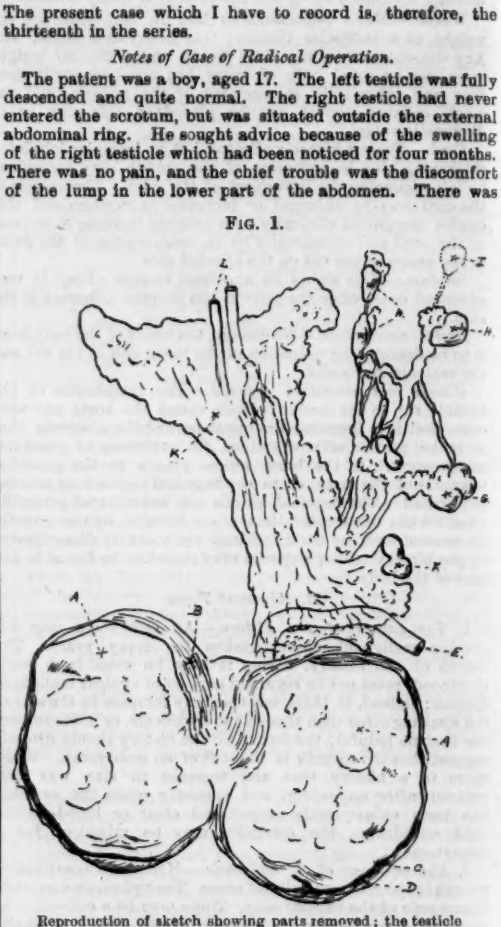
Grégoire[10]	3 cases	in 1905, 1907, 1908.
Cunéo[18]	1 case	,, 1906.
Chevassu[17]	2 cases	,, 1909.
Gosset[9]	1 case	,, ,,
Pierre Fredet[9]	1	,, ,, ,,
Delbet[18]	1	,, ,, 1910.
Michon[19]	1	,, ,, ,,
Panchet[20]	1	,, ,, ,,
R. Howard[21]	1	,, ,, ,,

The present case which I have to record is, therefore, the thirteenth in the series.

Notes of Case of Radical Operation.

The patient was a boy, aged 17. The left testicle was fully descended and quite normal. The right testicle had never entered the scrotum, but was situated outside the external abdominal ring. He sought advice because of the swelling of the right testicle which had been noticed for four months. There was no pain, and the chief trouble was the discomfort of the lump in the lower part of the abdomen. There was

FIG. 1.



Reproduction of sketch showing parts removed; the testicle has been cut open longitudinally. A, Body of testicle, almost completely replaced by growth. B, Epididymis. C, Tunica albuginea. D, Tunica vaginalis. E, Vas deferens. F, Gland, level of bifurcation of common iliac. G, Gland, level of bifurcation of aorta. H, Glands, situated over the inferior vena cava and right side of the aorta. I, Gland, level of renal vein and removed separately (Fig. 3 is from sections cut from this gland). K, Fascia over the psoas. L, Spermatic vessels.

a lump in the groin 3 inches long by 2 inches broad, which was evidently a swelling associated with the testicle, as the cord could be felt passing up from the swelling into the inguinal canal, and testicular pain was elicited by pressure on the deep aspect of the mass. The outlines were well defined and smooth and the surface slightly lobulated. The swelling was firm and yet gave a distinct sensation of fluctuation, but the deeper part was hard and inelastic. The whole tumour was opaque to transmitted light. It was not

* I am not including in this group Roberts's case (14), in which the glands were removed 14 months after the testicle on account of recurrence of the growth; nor Bland-Sutton's case (15), in which he shelled out an enlarged gland but did not deal with the intervening tissue nor do a complete dissection of the lymphatics.

fixed to the skin or deeper structures. The cord was normal; there was no increase in size nor pulsation. No palpable glands; no evidence of secondary deposits.

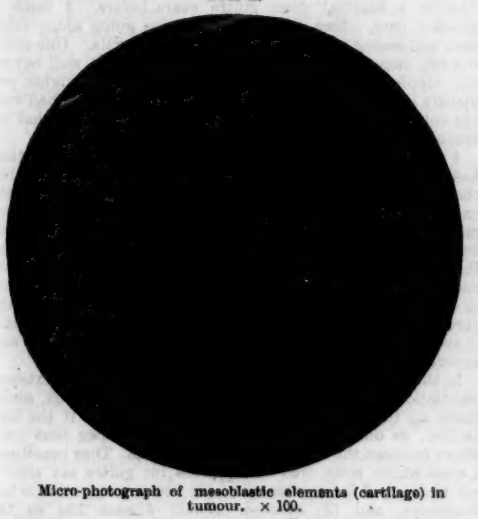
On April 5th, 1911, I did the radical operation as already described. Having made an incision over the swelling and freed the testicle, I incised it to confirm the diagnosis of tumour. The incision was then prolonged up to the costal margin through the muscles of the abdominal wall and the peritoneum reflected. A hernial sac was found running along with the cord, and this was cut off and the base ligatured in the usual way. The vas was traced into the pelvis, ligatured, and divided. The fascia over the psoas, including the lymphatics and glands lying in relation to the vena cava, and the right part of the aorta from just below the bifurcation of the common iliac to just below the renal vein, was dissected up. The testicle and tumour, lymphatics, glands, and fascia were then all removed in one piece. (Fig. 1.) When this had been done another gland previously overlooked was seen lying on the vena cava at the level of the renal vein; this was removed separately. The abdominal wall was stitched up in layers without drainage. Union by first intention. The patient returned home three weeks after the operation.

Examination of Tumour.

The tumour was hardened and then incised. The tunica vaginalis contained practically no fluid. The whole of the body of the testicle is invaded by solid growth; the tunica albuginea is somewhat thickened, but is everywhere intact and encloses the tumour. The epididymis lies slightly compressed on the posterior aspect of the growth. The cord is not invaded but is larger than normal, due to some increase in the vessels. The cut surface is reddish-brown in colour with patches of yellow-grey (commencing degeneration) in the centre.

Microscopically the tumour is a solid embryoma. The mesoblast is represented by cartilage (Fig. 2), and sarcomatous and myxomatous tissues; the hypoblast by cysts lined by columnar epithelium. Some of the cysts show considerable infolding of the epithelial lining. No trace of epiblastic elements (except one very doubtful cell nest) can be seen, although sections were taken right across the tumour.

FIG. 2.



Micro-photograph of mesoblastic elements (cartilage) in tumour. × 100.

Section of the highest gland, which is 1 cm. in diameter by 0·5 cm. thick, shows well-developed cystic spaces with marked infolding of the basement membrane and is lined by columnar epithelium and goblet cells. (Fig. 3.) A small patch of myxo-sarcomatous tissue is also present.

Summary.

In conclusion, I wish to emphasise the following points:—

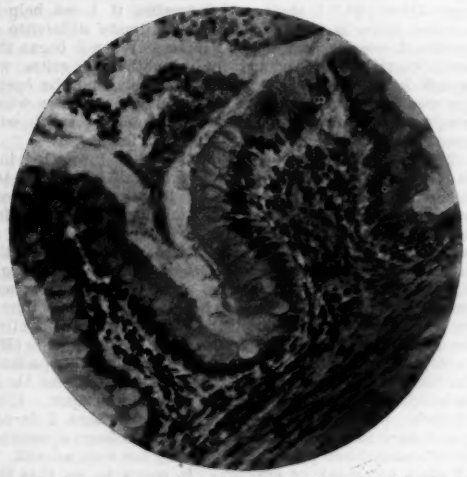
1. All tumours of the testicle must be regarded as malignant.

2. The history of previous venereal disease, the association of the swelling of the testicle with an injury, the length of the history dating perhaps from childhood, must not be allowed to outweigh clinical evidence.

3. Always suspect a tumour of the testicle when there is an oval swelling which is not translucent and comparatively painless.

4. When the tumour is in addition soft or elastic, and the surface shows slight lobulations, regard the suspicions as confirmed.

FIG. 3.



Micro-photograph of portion of cyst in secondary deposit in gland, showing columnar epithelium and goblet cells. × 400.

5. Increased pulsation of the cord is in favour of tumour, but is not pathognomonic.

6. A solid tumour may be so elastic as to give the feel of a fluid swelling.

7. The aberrant clinical manifestations of a testicular neoplasm must be constantly borne in mind.

8. If the diagnosis is uncertain and the possibility of growth is entertained the tumour must be explored. Should the tumour be syphilitic, no harm will have been done; if tubercular or a hæmatoma, operation is the correct treatment.

9. When the diagnosis of tumour is confirmed the complete radical operation, consisting of removal of testicle, cord, lymphatics, and surrounding fascia, and of the lymphatic glands in the region of the aorta and vena cava, must be done, unless the lumbar glands are extensively involved, or there are evidences of metastases elsewhere.

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PARTIAL THYROIDECTOMY UNDER LOCAL ANÆSTHESIA, WITH SPECIAL REFERENCE TO EXOPHTHALMIC GOITRE.[1]

BY T. P. DUNHILL, M.D. MELB.

ALL that I shall speak about in this paper is the result of my own experience. The conclusions are such as I have been driven to. I shall not dogmatise if I can help it, because there is much room for legitimate difference of opinion on every aspect of the subject. When I began this work, partial thyroidectomy for exophthalmic goitre was regarded as being at least fairly dangerous, and the operation was not a frequent one. The number of cases which have now been operated upon enables one to speak with more knowledge, but we are still far from finality.

By way of introduction, I might say that I was led into this work in the following way. Through interest in the disease, and reading the medical literature, I had been removing the thyroid glands from milch goats, and feeding the patients on the milk. Thus I had quite a number of patients under me in the out-patient department of the hospital. One day there came a patient who was exceedingly ill, who had no living relations, and who begged for any treatment which would relieve her. After a little time I decided to operate, and placed the whole position before her. She wished for operation. I asked my senior surgeon (Mr. Murray Morton) for a bed. After the operation other patients who had seen her in the out-patient room asked to see her in the ward. Then another asked to be operated upon. Ultimately all were operated upon. Since that time I do not think I have had to persuade a patient to undergo operation. The first-mentioned patient is now doing her work as cook.

I shall not speak of etiology. It seems to me that the chief interest will centre round such questions as, Is surgical interference justifiable? If so, at what stage of the disease is it indicated, and to what extent is interference desirable? Then comes the question of the absolute or relative safety of the patient, and what modifications of technique help to assure this. Finally, and most important of all—in what condition do we leave the patient.

I have written[2] that, judged from the point of view of response to operative treatment, cases fall into four classes:—

I. *The classical type.*—There are present goitre, tachycardia and palpitation, tremor, staring eyes, with or without exophthalmos. There may or may not be complete amenorrhœa, emaciation, alopecia, and other less constant symptoms. But we can detect little or no organic degeneration. The heart has not "broken down," if we may use that term to indicate either definite œdema of dependent parts or irregularity of pulse. It is arguable whether operation should be performed in this class or not. There is the possibility of complete return to health by medical treatment or rest, or with no treatment at all. Also there is the possibility that, in spite of all medical treatment, the disease may progress, to end either in death or in such organic degeneration that return to health is an impossibility. We will discuss that later.

II.—In this class I place those cases in which the disease has progressed until there has been organic degeneration; and among them there have been some complete wrecks—irregular heart, œdema, enlarged liver. The existence of this class at all (and it is a comparatively large one) is some answer to the query as to whether cases in the first class should be operated upon, and it is certainly some answer to the statement still made sometimes that all patients ultimately get well if they live long enough. It has been stated that cases in this class are too far advanced for operation, I think for two reasons: (1) that they are too ill to stand the operation; and (2) because degeneration of organs has advanced to such a stage that improvement is impossible. We will discuss that also later.

III.—In this class I place the cases in which the thyroid gland is quite small, in which it can sometimes scarcely be detected; and yet, associated with that small gland, there may be an extreme degree of one or more of the characteristic signs. There may be absence of tremor or of exophthalmos, though either or both may be excessive. There may be smothering sensations or flushings. In spite of a rapidly beating heart the patient is usually over-fat, if one may use the term.

IV.—In this class I place the cases in which there are some thyrotoxic symptoms, associated with a goitre which is not truly exophthalmic in type. I do not mean by this cases of simple parenchymatous goitre which have been in existence for some years, and have then become exophthalmic in type. Those are among the worst of cases. But there are some cases of adenoma of the thyroid in which the position of the adenoma behind the sternum or clavicle, or the adenoma, apart from any question of position or size, seems to irritate the surrounding gland tissue and cause some tremor, some staring of the eyes, and make the heart more easily excited.

To speak of the considerations which influence one in deciding whether to operate in each class one has to take into account the position in life of the patient and the severity of the case in relation to the progress made under medical treatment. If a patient has means and leisure, and the symptoms are not progressing, and one feels that there is no danger of the heart condition passing from mere irritability into organic change, then medical treatment could safely be persisted with for an indefinite time. Against this one has found that again and again a patient has moved on from one practitioner to another, or has stayed away from her own practitioner, and ultimately comes back, with œdema of the feet. I will instance one or two cases.

I recently operated upon a patient who had seen a practitioner in one of our larger provincial towns two years ago. She took his medicine for three months, then went to a Chinese herbalist. She took the drugs of the Chinese herbalist for one year and nine months; she then saw a medical man who sent her to me. This patient's sister had died in a hospital from goitre years before. I think of another case, where a woman had been going along fairly well and seeing me at moderately long intervals. One morning she came with a heart enlarged, the apex well beyond the nipple-line, and an irregular pulse. Some nights previously she had gone to a dance; that, I presume, had been the culminating cause, though it is more probable that the trouble had been progressive before the dance.

I myself refuse to operate until I know that the patient has had three months' efficient medical treatment, unless there are present other circumstances influencing the case, and one is guided by all the circumstances. One man I kept under medical treatment for nearly 12 months, but he could never work with efficiency, always the thumping heart with the least exertion, and often without. At the end of the time I removed one lobe. Response to operative treatment in this class is very prompt, and the cure is complete if organic heart disease is not present, and if sufficient gland is removed. With local anæsthesia and expert operating the danger is *nil*.

In the second class one gets every stage of wreck—extreme emaciation, œdema, sometimes only in feet and legs, sometimes up the whole body, sometimes in the face if the face be low, as during sleep. Pulse irregular; apex beat anywhere between the nipple-line and the axilla. They constitute a class which most men who operate for goitre say should not be touched for two reasons: (1) because operation is too dangerous, and (2) because organic disease has so far advanced that improvement cannot follow. Out of 380 thyroid operations altogether I have performed 19 on cases in this class, and I say that operation is not too dangerous, and that very great improvement follows. One patient was lying on a bed utterly prostrated. She was œdematous; the stethoscope dented the chest wall; the apex-beat was 1 inch outside the nipple-line. She had incidentally freely moveable kidneys, a retroverted uterus, was almost blind (though not old), and whilst in hospital became deeply jaundiced. Dr. White assisted me to remove one lobe, and, later, half the other. The patient now leads a happy life, does light work, walks, and drives. Of course she cannot do hard work, and her heart can never be sound, but she was completely invalided before.

I have reported before the case of a nun, whose face was asymmetrical with œdema every time she slept. Dr. A.

[1] A paper read before the Surgical Section of the Royal Society of Medicine in joint meeting with the Medical Section and the Section of Anæsthetics on Feb. 13th, 1912. The discussion upon it was adjourned.

[2] Brit. Med. Jour., May 22nd, 1909.

Shields helped me to operate upon her three years ago, and she has since been made Mother Rectress of her convent. She says, with a smile, that she "cannot go up and downstairs *too* many times a day." Her pulse is irregular but quiet; and she does her work fairly comfortably. Two patients whom I had placed in this class on account of œdema, and what was apparently heart failure, completely recovered; and each does all the female labour on a farm. I could multiply instances and details. All of these patients may be written to, or letters from them seen. I do not think that any anæsthetist would care to give a general anæsthetic to cases in this class, but under local anæsthesia one can state that the patients stand the operation well. There is only danger under two conditions: (1) operating under an acute exacerbation of poisoning; (2) operating when bronchitis is present.

About the third class, some authors says that even in the smallest glands associated with thyrotoxic symptoms one can detect the active part and remove it. I cannot, and I think it is unwise to remove portions of a gland which is not obviously enlarged, even though all, or most, of the other characteristic signs are present. One wants to be sure that there is no enlarged portion beneath the sternum or either clavicle. If there it is not always easy to detect. Microscopically such glands show acini densely packed with active cells, and the activity of gland tissue per cubic space is so great that if half or two-thirds of the gland is removed the remaining portion is still so poisonous that it produces symptoms; and it seems that those densely packed cells are likely to atrophy from mutual pressure later. That is only opinion, but the few cases of this class that I have operated upon make me disinclined to remove gland substance.

The fourth class I will not take up time speaking about. The response to operation is immediate and complete.

I think that here I should speak of the mortality. That is one of the most important points to the physician who is deciding the welfare of a patient. I have published enough about the first case I lost, removing too much tissue at once with much crushing when one was inexpert. I lost my second case through operating when bronchitis was present, but the pulse-rate was getting higher each day, and the condition was grave; one took the risk to try to save life. Hypostatic pneumonia followed and the patient died. The third case was moribund when I operated. The patient had been ill for some years and became rapidly worse; then she was sent up to me. Her pulse-rate was between 160 and 180; and she was acutely ill. With Leiter's tubes and calcium lactate the pulse came down to 144 one morning, but rose again to the vicinity of 170 to 180. I knew I could remove the larger lobe rapidly. I thought that, even then, if the larger lobe could be removed without much handling it might not be too late. I discussed it with the husband; he could see that she was dying. I did it. It made no difference at all; the pulse kept the same for the next 24 hours, and she died. That woman had two years during which she could have been operated upon safely and completely cured. The last exacerbation came on whilst she was under medical treatment; then it was too late. I have lost one other case, the circumstances surrounding which I cannot publish. That is four deaths in 380 operations of all classes, and in 230 cases of exophthalmic goitre, and for each death there was an accountable reason.

I think the opinion is becoming almost universal that under certain circumstances operation may be necessary in any case, but there are many who would regard it as being only a last resort. For certain reasons I feel strongly that operation should not be regarded *only* as a last resort. So long as it is regarded as a last resort operation cases will be continually progressing from Class I. to Class II., and the practitioner will have taken away from the patient her chance of complete recovery. Also I would like to say that during the last 18 months five cases have been sent to me in which the patients simply died as soon as they got into hospital. Operation was out of the question; they were dying when they arrived, and all of them had been under constant medical attention. One came 160 miles by train, reached the hospital in the afternoon, and died the same night. One drove 20 miles in a conveyance, 200 miles by train, ambulance to a private hospital, and died. One died at home in the few days intervening between the time when she decided to come into hospital and the day when a bed could be ready. One was admitted into a medical ward until a surgical bed could be ready, had diarrhœa and vomiting all the time, and died before operation. One of the deaths after operation which I mentioned might be added to this number, for the patient was practically moribund when she arrived. This would make a total number of six patients, who were sent absolutely too late for surgical interference. That is one aspect of the *dernier ressort* view!

Then, when speaking of the permanent damage which may occur, I would mention one case in which the eyes were so proptosed that the conjunctival mucous membrane was hanging in œdematous folds. Dr. Edward Ryan said that unless the exophthalmos could be relieved by partial thyroidectomy the patient must lose her eyes. I operated with a pulse so rapid that at times it could not be counted. Her pulse is now in the eighties, but one eye has gone completely; and although the cornea is still transparent in the other, we are not yet sure what will happen. Then there are all the cases which have advanced from Class I. to Class II., those in which the damage is irreparable; I think one cannot ignore evidence like that.

There is also the question as to how much gland tissue should be removed. We know the immense physiological importance of the thyroid gland, and yet here we have it poisoning heart muscle, poisoning nerve tissue, causing exopthalmos and emaciation. We have to remove enough to cure the disease, and we must leave enough for physiological purposes, and all the judgment and experience which one has are called for. In young patients, and those not very bad, the larger lobe should be enough, with any mid-lobe or isthmus. In older people, and those in whom the disease is very bad, the removal of one lobe will practically not do any good at all; one lobe and half the other must be removed. If the gland has been big and active, even then the remaining portion may be too large. One has to remember that more can always be removed, but it cannot be put back again easily. One must remove enough, but one must never be hustled into removing too much in order to make a "complete job" at once. Although I now rarely have to operate more than once, it will occasionally happen that more has to be removed in order to completely cure the patient, and in three cases I have operated three times. They were among my earlier cases, and only one lobe was removed at first; they were also among the earlier cases in which I was recognising that part of the second lobe had to be removed, hence I was very frightened of removing too much. So later I removed a third portion. I am sure it was wiser to go slowly and safely in the way I did; it all had to be, in the way of finding out knowledge.

Anæsthesia.—Now as regards anæsthesia, with the exception of a very few cases in which open ether has been given by Dr. W. T. Harse or Dr. Davies, all my operations have been performed under local anæsthesia. I know that in many instances general anæsthesia may be quite safely given, but in a great many instances it cannot. *All* the causes of death in this operation are not known; chief among them are crushing and handling of gland tissue, slow operating, inexpertness. General anæsthesia alone is not the chief cause of death, but I like operating under local anæsthesia; the patients are safe, the distress is negligible, the recurrent laryngeal nerve may be guarded, post-operative vomiting does not occur, pints of fluid may be given by the mouth. And the moment the operation is over the patient is happy enough to smile, and free from the unpleasant sequelæ of general anæsthesia. General anæsthesia could not be given to cases in Class II., and scarcely in the worst cases of Class I. Almost always the upper pole, or a pear-shaped protuberance from the posterior edge of the middle of the lobe, wraps itself tightly around the trachea, almost behind the trachea. In these cases there is a little "drag," but I submit that that protuberance is more safely shelled out and off the trachea by gentle manipulation under local anæsthesia. In many instances, with nervous patients I have placed the apparatus for general anæsthesia on a shelf in the room, and told the patient that she might have it on demand. I have never had to change, and have long ceased to carry the apparatus. Local anæsthesia means using 7 oz. of 2 per 1000 novocaine, and well infiltrating all the front of the neck.

As regards exophthalmos, the reports that occur in the literature differ very widely. I find that if one lobe and a portion of the other be removed the eye corresponding to the

complete removal recedes much more than the other. If sufficient gland substance has been removed to cure the general condition, the eyes, even if they have been very prominent, almost always recede in a longer or shorter time. One patient whose eyes were very proptosed, and looked quite uncanny, became normal in appearance within a fortnight of operation. Another who had two operations took ten months. I have mentioned the patient whose eyes were so proptosed that one was destroyed, the other receded after operation but not completely, and a few always have a little proptosis remaining.

About the parathyroids, I have not evidence from which to speak. In 380 operations I have never seen evidence of tetany. I certainly strip back the posterior capsule as carefully as I can, but I never do the intracapsular ligation of vessels, as insisted on by some American writers. If they are as readily damaged as the literature would show, I must have damaged them many scores of times. At present I have to suspend judgment.

I think, again (this is only opinion), that if the removal is rapid and gentle, removal of one lobe and a half is possibly less dangerous than removal of one lobe alone, for the following reasons. Removal of one lobe, I believe, causes reflex dilatation of the vessels of the other lobe, with increased activity of the gland. The remaining lobe, being tightly encapsuled by its capsule, must pour the results of its increased activity into the lymph and blood vascular systems, with consequent poisoning. If all of one lobe and half the second be removed *without crushing*, the clean-cut surface of the second lobe allows free escape for the thyroid secretion and lymph, which is led to the exterior by an efficient drainage-tube. This supposition would certainly not hold good with slow operating or rough handling of the gland. The operation must frequently result in failure if only one lobe is removed, the other lobe being at the same time large and vascular. Removal of one lobe may not do a patient any good at all, and it is because so much thyroid tissue is left behind that the operation is so frequently spoken of as not being successful.

The fear that these patients may become myxœdematous has been expressed to me frequently. The operation is being performed extensively the world over now, and many critical eyes are watching results. I think no case of myxœdema following operation would escape observation. On the other hand, I think the greater fear is that, without operation, many cases will pass from Class I. to Class II., or else come too late for surgical interference.

In Osler's "System of Medicine" the statement is made that the disease is one from which "few recover and some die." Against that one can say that one has seen individuals so miserably wretched that life was burdensome, become in one week absolutely calm, lose all tremor, and in a few weeks able to actively enjoy life; others who though not quite so bad are unable to do work except with constant distress, become in a few weeks able to undertake their duties with comfort. They play tennis, they ride, they dance; one man builds coaches; one, who was very ill, has returned to blacksmithing. If, rarely, there is one in whom, through not removing quite enough tissue, the heart beats still too rapidly, one feels that it is better to err on the safe side, and it does not detract from the result in the cases of scores of patients who are leading vigorous lives.

Melbourne.

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TUBERCULOUS DISEASE OF THE BONES AND JOINTS:

PRESENT POSITION OF TREATMENT IN LONDON.

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IT may now be accepted that tuberculous disease of the bones and joints is, in England at least, the most important cause of crippling in childhood. Statistics published in the reports of the Medical Officer (Education) to the London County Council during the past few years leave no doubt upon this point, but it may be well to complete these statistics up to date. The following numbers refer to 3275 crippled children examined by me in the London County Council Invalid Schools during the past five years.

Causes of Crippling in 3275 London Children.

Tuberculous disease of—		Congenital—	
Spine	558	Dislocation of the hip	105
Hip	670	Talipes	91
Knee	298	Various deformities...	31
Ankle	70	Total congenital	227
Elbow	10	Rickets	156
Various bones and joints	28	Amputations	67
Total tuberculous disease	1634	Old septic bone or joint disease	
Paralysis—		Spinal curvatures...	
Infantile	636	Various deformit	
Spastic	255	Total	
Progressive...	32		
Various...	19		
Total paralysis ...	942		

In Germany in 1906—at the instance
plete census of the crippled children wa
found in the whole of Germany, exclud
and Hesse. The principal groups were :-

Principal Causes of Crippling in Ger

Tuberculous disease of bones and joints	11,303	Severe scoliosis	
Infantile paralysis	11,165	Congenital disloc	
		Severe rickets ...	

The importance of tuberculosis is again evident.
numbers are apparently lower in Germany is partly due to the inclusion in Biesalski's statistics of many comparatively slight defects, which would not be considered sufficiently severe to necessitate the transfer of the child to a special school. But it is also clear that infantile paralysis, severe rickets, and severe adolescent deformities are more common in Germany than in London.

There is much controversy as to the frequency of chronic pulmonary tuberculosis in childhood. There can be none as to the frequency of tuberculosis of the bones and joints. Some figures, given by Sir George Newman in his report for 1910, are of importance in this connexion. It is there shown that in a large collection of statistics, obtained in course of routine school inspection, the total cases of tuberculosis were made up as follows :—

Phthisis (excluding doubtful cases)...	1243
Other forms of tuberculosis	1625

Unfortunately the nature of the lesion in these other forms of tuberculosis is not stated, but it is certain that a large proportion of them must be cases of surgical tuberculosis, including disease of the bones and joints.

These forms of tuberculosis in childhood are not very fatal. The death-rate among the 1634 children in the London schools was only 2 per cent., although many of the children had been watched for as long as five years. This, of course, does not represent the real death-rate from the diseases. The children in these schools have, as a rule, passed through the more acute stages of their disease, and, indeed, for this reason the figures given above do not represent anything like the total number of such children in London, for there are probably nearly as many again in the various hospitals and infirmaries. The total death-rate is probably about 20 per cent., leaving about 80 per cent. who

recover, most of them with some resulting deformity or defect more or less severe.

On commencing the work of inspecting the London County Council Invalid Schools the extent and severity of these resulting deformities came as a shock, and gave an entirely new insight into the efficacy of the present hospital methods of treating such conditions as spinal caries and tuberculosis of the hip and knee. For example, among the first 180 cases of spinal caries examined in the schools, no fewer than 104 were classed as having a severe angular deformity. The first 210 cases of hip-joint disease I classed as follows:—

Cases of Hip-joint Disease.

Disease quiet—	
With good mobile hip	14
With ankylosis and good functional result	22
With some movement, good functional result	20
Moderate functional result	34
Bad functional result (including 25 excisions)	71
Disease active	36
Amputations	6

7 cases were not fully examined.

At that time I also formed a very bad opinion of the final results of such radical operations as excision of the knee for tuberculosis, and this opinion has been only strengthened after further observations. In 1910, collecting the cases of old excision of the knee seen amongst these school children, I found that I had records of 87 children with 89 excised knees, the operations having been done at various hospitals [illegible] London. Stated briefly the results were:—

Results of Excision of Knee.

[illegible]rmity—		Deformities—*continued.*	
[illegible]	1	Genu varum, 20° or less ...	8
[illegible]	5	,, ,, 20° to 60° ...	8
[illegible]	7	Shortening—	
		Under 1 inch	7
[illegible]	19	1 inch to 3 inches	40
[illegible]	14	3 inches to 6 inches	16
[illegible]	11	Over 6 inches	3
[illegible]	3		

[illegible]sms twice into these figures as having both [illegible]ng; in several the shortening was not capable [illegible] to the deformity.

[illegible] quite tell the whole story, as of these [illegible] already undergone a second excision, three a [illegible]n, and one an osteotomy for the correction of [illegible].

[illegible]ufficient has been said to show the great severity of these deformities resulting from tuberculous disease. They are of as great importance to the community as to the individual. Only those who have had to do with the education of these children, and with attempts to find them work suited to their defective physique, can fully appreciate how necessary it is to reduce all deformity to a minimum. Every severely deformed person is liable to be a constant drain upon the community, and it is evident that our present methods of treating tuberculosis are not as efficient as they might be in reducing this drain to a minimum. It is time that we looked into our methods, to see in what respects they fall short of the ideal, and in what manner they may be improved.

The principles of treatment of these conditions are simple, and have for a long time been well understood and taught; but it is to be feared that, owing to various difficulties, they are not carried out with anything like uniformity. Briefly they are:—

1. Early diagnosis.

2. Exact diagnosis, including routine radiography, so that the cases of focal disease in the bone, capable of radical treatment, may not be missed. This applies specially to disease of the knee and other accessible joints.

3. Correction of any deformity that has already arisen. This is, as a rule, completely neglected in spinal caries, in which disease hyper-extension of the spine in the early stages will gradually undo a part at least of the deformity.

4. Rest and fixation, in that position which will be the best if ankylosis supervenes; for example, the spine to be fixed in slight hyper-extension, the hip extended, slightly abducted and with the foot pointed directly forward, the knee fully extended, &c. The spine and hip can only be satisfactorily fixed with the child recumbent; to attempt to carry out rest and fixation by ambulatory treatment is to neglect this principle.

5. The treatment of abscesses by means as conservative as possible, postponing operative treatment and using aspiration in preference to incision.

6. After-treatment by fixation or support as long as is necessary to prevent subsequent contracture. The complete period of treatment is always to be measured in years.

The exact mechanical methods are a matter for the individual surgeon. Thus, if one surgeon prefers the double Thomas frame, another the Berck frame, a third the Whitman frame for the treatment of spinal caries, it is generally because each knows his own instrument best. The results obtained will depend at least as much upon the individual care of the surgeon as upon the method.

It would be tedious to enlarge further upon the details of treatment, but it is instructive to see to what extent they are, or can be, carried out in the various classes of hospitals and other institutions.

In the large general hospitals and in the children's hospitals the evident chief failure is the short period of treatment of these children as in-patients. This is due to causes that are inevitable—press of work, the numbers awaiting admission, and so on. Nevertheless, it is a defect which at once renders these hospitals totally unsuitable for the treatment of most of these cases. As a rule the children are admitted only for short periods—for the opening of an abscess or for the correction of a deformity; and the main part of their treatment, by rest and fixation, has to be carried out upon them as out-patients, a practical impossibility.

The infirmaries are to some extent liable to the same objection, although there is less reason for hurrying the children out of the wards. But they are more liable to the objection—if only owing to understaffing—that the principles of correction of deformity and of proper fixation are liable to be neglected.

The special hospitals—such as the Alexandra Hospital, The Vine at Sevenoaks, Treloar's Hospital at Alton, and the Liverpool Country Children's Hospital at Heswell—are liable to none of these objections. They can carry out to the full all the principles of correct treatment, and it has been evident to me that the results obtained in these hospitals, as seen in the London County Council schools, are many degrees better than those obtained in the general or children's hospitals.

Three other varieties of country homes require to be mentioned. The so-called country surgical homes, of which there are many around London, in theory possess most of the possibilities of good treatment. In fact, they suffer from many defects—they are too small, are often imperfectly equipped (e.g., have no X ray apparatus), and are looked after by honorary medical officers, who have too little time to give up to the home and are apt to accept and continue the treatment which was being carried out at the time of the child's admission or else to drop treatment altogether. Sometimes these honorary officers lack proper knowledge of the mechanical methods which are required, and sometimes have too great a desire to operate.

Convalescent homes are evidently only suitable for cases sufficiently recovered to require no further treatment.

The Metropolitan Asylums Board Homes, such as those at Margate and Carshalton, have all the same advantages as have the special hospitals. It is to country hospitals of this class that we have specially to look for the improvement in the treatment of tuberculous disease of the bones and joints. These country hospitals present only one defect. On discharge the children are often returned home without instructions and without arrangements for after-supervision. It should be easy to arrange these hospitals to work in close touch with the out-patient departments of the hospitals, receiving children from them directly and without delay and returning them to the out-patient departments when discharged from the country hospital.

To summarise, then, the results of observations upon a large number of children suffering from old-standing tuberculous bone and joint disease in London, these create a profound dissatisfaction with our present methods of treatment. This criticism applies chiefly to our methods of organisation and administration, and the obvious line of advance consists in the increase of special hospital accommodation for these children. Whether this increase should be carried out by

complete removal recedes much more than the other. If sufficient gland substance has been removed to cure the general condition, the eyes, even if they have been very prominent, almost always recede in a longer or shorter time. One patient whose eyes were very proptosed, and looked quite uncanny, became normal in appearance within a fortnight of operation. Another who had two operations took ten months. I have mentioned the patient whose eyes were so proptosed that one was destroyed, the other receded after operation but not completely, and a few always have a little proptosis remaining.

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BY R. C. ELMSLIE, M.S. LOND., F.R.C.S. ENG.,

CHIEF ASSISTANT IN THE ORTHOPÆDIC DEPARTMENT, ST. BARTHOLOMEW'S HOSPITAL; ASSISTANT SURGEON, METROPOLITAN HOSPITAL; ASSISTANT MEDICAL OFFICER (INVALID SCHOOLS), LONDON COUNTY COUNCIL EDUCATION COMMITTEE.

IT may now be accepted that tuberculous disease of the bones and joints is, in England at least, the most important cause of crippling in childhood. Statistics published in the reports of the Medical Officer (Education) to the London County Council during the past few years leave no doubt upon this point, but it may be well to complete these statistics up to date. The following numbers refer to 3275 crippled children examined by me in the London County Council Invalid Schools during the past five years.

Causes of Crippling in 3275 London Children.

Tuberculous disease of—		Congenital—	
Spine	558	Dislocation of the hip	105
Hip	670	Talipes	91
Knee	298	Various deformities...	31
Ankle	70	Total congenital	227
Elbow	10	Rickets	158
Various bones and joints	28	Amputations	67
Total tuberculous disease	1634	Old septic bone or joint disease	78
Paralysis—		Spinal curvatures... ...	80
Infantile	636	Various deformities ...	89
Spastic...	255		
Progressive...	32	Total	3275
Various...	19		
Total paralysis ...	942		

In Germany in 1906—at the instance of Biesalski—a complete census of the crippled children was taken. 75,183 were found in the whole of Germany, excluding Bavaria, Baden, and Hesse. The principal groups were:—

Principal Causes of Crippling in German Children.

Tuberculous disease of bones and joints	11,303	Severe scoliosis	9,167
Infantile paralysis	11,165	Congenital dislocation of hip	6,479
		Severe rickets	4,724

The importance of tuberculosis is again evident. That its numbers are apparently lower in Germany is partly due to the inclusion in Biesalski's statistics of many comparatively slight defects, which would not be considered sufficiently severe to necessitate the transfer of the child to a special school. But it is also clear that infantile paralysis, severe rickets, and severe adolescent deformities are more common in Germany than in London.

There is much controversy as to the frequency of chronic pulmonary tuberculosis in childhood. There can be none as to the frequency of tuberculosis of the bones and joints. Some figures, given by Sir George Newman in his report for 1910, are of importance in this connexion. It is there shown that in a large collection of statistics, obtained in course of routine school inspection, the total cases of tuberculosis were made up as follows:—

Phthisis (excluding doubtful cases)...	1243
Other forms of tuberculosis	1625

Unfortunately the nature of the lesion in these other forms of tuberculosis is not stated, but it is certain that a large proportion of them must be cases of surgical tuberculosis, including disease of the bones and joints.

These forms of tuberculosis in childhood are not very fatal. The death-rate among the 1634 children in the London schools was only 2 per cent., although many of the children had been watched for as long as five years. This, of course, does not represent the real death-rate from the diseases. The children in these schools have, as a rule, passed through the more acute stages of their disease, and, indeed, for this reason the figures given above do not represent anything like the total number of such children in London, for there are probably nearly as many again in the various hospitals and infirmaries. The total death-rate is probably about 20 per cent., leaving about 80 per cent. who

recover, most of them with some resulting deformity or defect more or less severe.

On commencing the work of inspecting the London County Council Invalid Schools the extent and severity of these resulting deformities came as a shock, and gave an entirely new insight into the efficacy of the present hospital methods of treating such conditions as spinal caries and tuberculosis of the hip and knee. For example, among the first 180 cases of spinal caries examined in the schools, no fewer than 104 were classed as having a severe angular deformity. The first 210 cases of hip-joint disease I classed as follows:—

Cases of Hip-joint Disease.

Disease quiet—	
With good mobile hip	14
With ankylosis and good functional result	22
With some movement, good functional result	20
Moderate functional result	34
Bad functional result (including 25 excisions)	71
Disease active	36
Amputations	6

7 cases were not fully examined.

At that time I also formed a very bad opinion of the final results of such radical operations as excision of the knee for tuberculosis, and this opinion has been only strengthened after further observations. In 1910, collecting the cases of old excision of the knee seen amongst these school children, I found that I had records of 87 children with 89 excised knees, the operations having been done at various hospitals all over London. Stated briefly the results were:—

Results of Excision of Knee.

Recovered, no deformity—		Deformities—*continued.*	
Free movement	1	Genu varum, 20° or less ...	8
Ankylosis	5	,, ,, 20° to 60° ...	8
Still active	7	Shortening—	
Deformities—		Under 1 inch	7
Flexion, 20° or less	19	1 inch to 3 inches	40
,, 20° to 40°	14	3 inches to 6 inches	16
,, 40 ,, 90°	11	Over 6 inches	3
Genu valgum	3		

Note.—Many cases come twice into these figures as having both deformity and shortening; in several the shortening was not capable of measurement owing to the deformity.

This does not quite tell the whole story, as of these children 25 had already undergone a second excision, three a third excision, and one an osteotomy for the correction of deformity.

Sufficient has been said to show the great severity of these deformities resulting from tuberculous disease. They are of as great importance to the community as to the individual. Only those who have had to do with the education of these children, and with attempts to find them work suited to their defective physique, can fully appreciate how necessary it is to reduce all deformity to a minimum. Every severely deformed person is liable to be a constant drain upon the community, and it is evident that our present methods of treating tuberculosis are not as efficient as they might be in reducing this drain to a minimum. It is time that we looked into our methods, to see in what respects they fall short of the ideal, and in what manner they may be improved.

The principles of treatment of these conditions are simple, and have for a long time been well understood and taught; but it is to be feared that, owing to various difficulties, they are not carried out with anything like uniformity. Briefly they are:—

1. Early diagnosis.

2. Exact diagnosis, including routine radiography, so that the cases of focal disease in the bone, capable of radical treatment, may not be missed. This applies specially to disease of the knee and other accessible joints.

3. Correction of any deformity that has already arisen. This is, as a rule, completely neglected in spinal caries, in which disease hyper-extension of the spine in the early stages will gradually undo a part at least of the deformity.

4. Rest and fixation, in that position which will be the best if ankylosis supervenes; for example, the spine to be fixed in slight hyper-extension, the hip extended, slightly abducted and with the foot pointed directly forward, the knee fully extended, &c. The spine and hip can only be satisfactorily fixed with the child recumbent; to attempt to carry out rest and fixation by ambulatory treatment is to neglect this principle.

5. The treatment of abscesses by means as conservative as possible, postponing operative treatment and using aspiration in preference to incision.

6. After-treatment by fixation or support as long as is necessary to prevent subsequent contracture. The complete period of treatment is always to be measured in years.

The exact mechanical methods are a matter for the individual surgeon. Thus, if one surgeon prefers the double Thomas frame, another the Berck frame, a third the Whitman frame for the treatment of spinal caries, it is generally because each knows his own instrument best. The results obtained will depend at least as much upon the individual care of the surgeon as upon the method.

It would be tedious to enlarge further upon the details of treatment, but it is instructive to see to what extent they are, or can be, carried out in the various classes of hospitals and other institutions.

In the large general hospitals and in the children's hospitals the evident chief failure is the short period of treatment of these children as in-patients. This is due to causes that are inevitable—press of work, the numbers awaiting admission, and so on. Nevertheless, it is a defect which at once renders these hospitals totally unsuitable for the treatment of most of these cases. As a rule the children are admitted only for short periods—for the opening of an abscess or for the correction of a deformity; and the main part of their treatment, by rest and fixation, has to be carried out upon them as out-patients, a practical impossibility.

The infirmaries are to some extent liable to the same objection, although there is less reason for hurrying the children out of the wards. But they are more liable to the objection—if only owing to understaffing—that the principles of correction of deformity and of proper fixation are liable to be neglected.

The special hospitals—such as the Alexandra Hospital, The Vine at Sevenoaks, Treloar's Hospital at Alton, and the Liverpool Country Children's Hospital at Heswell—are liable to none of these objections. They can carry out to the full all the principles of correct treatment, and it has been evident to me that the results obtained in these hospitals, as seen in the London County Council schools, are many degrees better than those obtained in the general or children's hospitals.

Three other varieties of country homes require to be mentioned. The so-called country surgical homes, of which there are many around London, in theory possess most of the possibilities of good treatment. In fact, they suffer from many defects—they are too small, are often imperfectly equipped (e.g., have no X ray apparatus), and are looked after by honorary medical officers, who have too little time to give up to the home and are apt to accept and continue the treatment which was being carried out at the time of the child's admission or else to drop treatment altogether. Sometimes these honorary officers lack proper knowledge of the mechanical methods which are required, and sometimes have too great a desire to operate.

Convalescent homes are evidently only suitable for cases sufficiently recovered to require no further treatment.

The Metropolitan Asylums Board Homes, such as those at Margate and Carshalton, have all the same advantages as have the special hospitals. It is to country hospitals of this class that we have specially to look for the improvement in the treatment of tuberculous disease of the bones and joints. These country hospitals present only one defect. On discharge the children are often returned home without instructions and without arrangements for after-supervision. It should be easy to arrange these hospitals to work in close touch with the out-patient departments of the hospitals, receiving children from them directly and without delay and returning them to the out-patient departments when discharged from the country hospital.

To summarise, then, the results of observations upon a large number of children suffering from old-standing tuberculous bone and joint disease in London, these create a profound dissatisfaction with our present methods of treatment. This criticism applies chiefly to our methods of organisation and administration, and the obvious line of advance consists in the increase of special hospital accommodation for these children. Whether this increase should be carried out by

the efforts of the charitable public or at the expense of the rates is a matter for the public themselves to decide. It is, however, clear that the results of defective treatment are so serious in that they produce a large number of cripples, that it is not unreasonable to hold this extra provision should be made at the expense of the rates, and that a large increase in the work that the Metropolitan Asylums Board has commenced at Margate and at Carshalton is justified.

The requirements, then, may be briefly stated:—

1. Increase in the accommodation for in-patient treatment of children suffering from tuberculous disease of the bones and joints, preferably in special hospitals situated in the country close to London.
2. The levelling up of these hospitals by having them staffed and supervised by men who will make a special study of the treatment of tuberculous joints, not only from the point of view of saving the child's life, but also from the point of view of preventing deformity.
3. The provision of extensive open-air wards.
4. Provision for treatment for an indefinite period, and for children of all ages, including infants.
5. Arrangements for the education of the children whilst in the hospital.
6. Proper arrangements for after-supervision in an out-patient department and in the home.

Devonshire-place, W.

TUBERCULOSIS OF THE MESENTERIC GLANDS IN CHILDREN:

ITS NATURE AND TREATMENT.*

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TUBERCULOSIS of the mesenteric glands is a condition often found by the surgeon when operating on the abdomen in children. Indeed, I would go so far as to say that tuberculous glands can be found in the mesentery of the small intestine in nearly every case of illness in a child which necessitates abdominal section. The frequency of tuberculosis of the mesenteric glands has been estimated by physicians and pathologists amongst children dying from some form of tuberculosis to vary from 54 to 78 per cent. It has been found, by post-mortem examinations, that in 22 per cent. of these cases the lesions in the mesenteric glands are the only lesions present, but in children with abdominal signs and symptoms they are present in nearly cent. per cent. of the patients.

These figures give very erroneous ideas to the clinician, and particularly to the surgeon. Abdominal sections are not as frequent in children as they are in adults. But during experience of the surgical practices of St. Thomas's Hospital and of the Children's Hospital, Great Ormond-street, it has been my fortune to see a large number of such operations. And the result of this experience is that tuberculous mesenteric glands will be found in practically every child patient submitted to an abdominal operation. Yet, as these children do well and live long, it must be from its frequency that this form of tuberculosis is one very amenable to treatment, and not of the bad prognosis which physicians and pathologists would have us to believe.

The reason for the great frequency of tuberculosis of the mesenteric glands is to be found in a consideration of the processes of digestion, such processes being regarded in their mechanical or physical characters.

The walls of the small intestine are composed of two complete and uniform coats of muscular tissue. The walls of the large intestine have no such uniform coats; the coat of circular muscular fibres is complete, but the longitudinal coat is gathered into three distinct longitudinal bands. As students of science, we have learned that where there is a difference of function there also will be a difference of structure. And the converse is true, where there is a difference of structure there will be a difference of function. The difference in muscular structure cannot be connected with the production of the different chemical juices—that is a function of the mucous membrane, not of the muscular coat. Therefore the difference in structure between the small and the large intestine must be concerned with their contraction—peristalsis. There is little difference in the contractions of the large and small intestines, except in one detail. The contractions of the small intestine, being more even and equable, are adapted for the passing onward of fluid contents; the contractions of the large intestine are less even and regular, being adapted to the passing onward of solid contents.

If the transition of the contents of our intestines from liquid to solid were accomplished gradually, the structure of the small intestine would gradually shade off into that of the large. This is not so. The structure of the small intestine ends abruptly, and that of the large intestine commences at the ileo-cæcal valve. Then it may be assumed that the physical change in the bowel contents from fluid to solid (accomplished largely by the absorption of water and the deposition of mucus) is accomplished whilst the products of digestion pause and wait at that place—namely, the cæcum.

Hence it will be seen that there is a period of pause in the transit of the products of digestion in the cæcum during which these physical changes are accomplished. This pause is made in a warm, slightly alkaline medium. Besides food, a varied host of micro-organisms is ingested which will flourish and multiply during the pause in the cæcum. This has been proved by means of counting the colonies of organisms grown in cultures from various parts of the alimentary tract. In this way it has been proved that micro-organisms are a hundredfold or a thousandfold more numerous in the cæcum than in any other part of the alimentary tract. It may be assumed true for tuberculosis and other infective conditions of the alimentary tract. Hence they are at their maximum infectivity or septicity in the ileo-cæcal region.

To protect the body against this menace a large amount of lymphoid tissue has been formed in the ileo-cæcal region. Hence the function of the appendix. There must be a continuous "ileo-cæcal" strife between organisms and the lymphoid tissue. And so long as the lymphoid tissue prevails the host is in good health. If the micro-organisms get the best of the ileo-cæcal strife the host is in bad health, and may suffer from appendicitis, colitis, or infected glands in the mesentery.

From the above reasoning there can be no mistake in assuming that the great entrance of tuberculosis from the intestine to the body is by the lymphatics of the ileo-cæcal region, and that, therefore, tuberculosis of the mesenteric glands originates from there. Though there is a considerable risk of the generalisation of tuberculosis from the infected mesenteric glands, in this situation the disease is not necessarily fatal. The children suffer from ill-health and abdominal pains referred to the umbilical region. These pains come on at night and sometimes after food. The loss of appetite, anorexia, is often accompanied by some disturbance of the action of the bowels, more often inactivity and constipation than looseness of the bowels.

It is a fact that I have often done abdominal exploration on such children with chronic ill-health, vague abdominal symptoms and discomfort, &c., with or without a tumour on abdominal palpation. And from a very considerable experience of such cases I can say that tuberculous mesenteric glands and a somewhat dilated appendix containing fæcal material, but otherwise not obviously diseased, are always found. The appendix is removed, whereby a great danger is obviated and a great source of discomfort, from contractions on the fæcal matter (appendicular colic), is avoided. A fortnight or three weeks after operation the patient is sent away to a country home. In nine cases out of ten the improvement is rapid and great. Shortly after the operation the appetite returns, and the patient eats and digests with enjoyment articles of diet which had been interdicted before. Hence there can be no doubt, certainly in my mind, that the appendix is the great (and removeable) source of danger and discomfort in these cases, and that no convalescent treatment should be undertaken until that is done.

About the nature of these tuberculous mesenteric glands there is doubt. Are they due to bovine tuberculosis from ingested milk, or are they due to human tuberculosis? At the present moment I am unable to say. Von Pirquet's test for bovine and human tuberculosis is usually negative. And from its varying results I must conclude that some infections

* Portion of a clinical lecture delivered at the Hospital for Sick Children, Great Ormond-street.

of the mesenteric glands are due to human tuberculosis, some to bovine tuberculosis, and some are due to both. Be this as it may, the clinical indications are clear in the cases of children with dietetic troubles, indigestions, abdominal pains and discomfort, and perhaps colitis; remove the appendix and begin sanatorium treatment a fortnight later.

I would therefore urge the very great frequency of tuberculosis of the mesenteric glands in children, and would advise the removal of the appendix in such cases as a preliminary step to further and "physicianly" treatment.

Harley-street, W.

ENTERECTOMY UNDER SPINAL ANÆSTHESIA FOR ACUTE INTESTINAL OBSTRUCTION IN AN INFANT 24 HOURS OLD; SURVIVAL FOR ONE MONTH.

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THE record of this case is of interest for the following reasons.

1. The rarity of the condition—congenital hernia of the cord—which was responsible for the acute intestinal obstruction. Coley records that in over 75,000 cases of hernia observed at the Hospital for Ruptured or Crippled, New York, only four such cases were found. The same author, quoting Adler, found that of 94 such cases upon whom laparotomy had been performed in other clinics 29 died within a few days after operation.

2. No case of successful resection of intestine with lateral anastomosis for acute obstruction has yet been recorded in a child of this age. Fairbank and Vickers,[1] in recording a successful resection with the use of Murphy's button in a case of their own, aged 7 months, refer to Collinson's case aged 3 months. (Subsequently a case was recorded in one of the journals of a similarly successful operation at the age of 17 days, but I have been unable to verify the reference.) Parry,[2] in recording a case of his own, aged 6 months, mentions that up to 1909 no case of resection of intestine for acute obstruction under the age of 12 years had survived at the Royal Hospital for Sick Children, Glasgow. Until Fairbank's case of 7 months old no child under 2 years of age had survived this procedure at the Hospital for Sick Children, Great Ormond-street.

3. The use of spinal anæsthesia. To undertake a procedure that in children under 2 years of age is so universally fatal that any survival is considered worthy of record would not have occurred to me had not my previous experience of several hundred cases of spinal anæsthesia in children, as modified by Mr. H. Tyrrell Gray, convinced me that failure in this case could only arise from faulty surgery and not from that hitherto uncontrollable factor—shock. This is a point of considerable importance in view of the fact that when Gray began his work four years ago on the modification of the fluid and the method of administration that would ensure its use with safety in children many surgeons had already committed themselves to the opinion that spinal anæsthesia in children was not an advisable procedure. The published records of his cases amply controvert this view, and the credit for the survival of the above case is entirely due to his method of spinal anæsthesia, that enables shock to be warded off with safety, and not to any new surgical procedure.[3]

The history is as follows. The patient was admitted under my care to the Hospital for Sick Children, Great Ormond-street, on June 2nd, 1910, 18 hours after birth. He was a poorly developed, undersized infant, who had been vomiting continuously since birth and had passed neither gas nor solid matter per rectum. His condition was very feeble and the pulse was uncountable. In the situation of the umbilicus was a tumour about as large as his own head, from the apex of which the umbilical cord had been ligated. The wall of the tumour was an opalescent sac with engorged veins in its substance, the base of the sac being continuous with the margins of a small opening in the abdominal wall. The contents of the sac were clearly seen to be many coils of small intestine (see figure). The abdomen was distended and a brief attempt to reduce the contents through the small opening in the abdominal wall was soon abandoned as hopeless. The reason for failure was two-fold, but was only determined after the sac had been opened. A full dose of Gray's stovaine-dextrin fluid was then injected into the spinal theca in the usual manner by Mr. G. M. Huggins, the resident medical superintendent, and in a short time the operation was proceeded with. Complete anæsthesia and muscular paresis were produced to the level of the seventh thoracic segment. On opening the sac it was found to contain from 1 to 2 feet of coils of small intestine, in parts gummed together by exudate, which was probably due to the fact that at birth an exploring needle had been run into the sac, wounding a coil of intestine with consequent slight escape of contents. Opposite to the apex of the superior mesenteric artery a short Meckel's diverticulum fixed the intestine

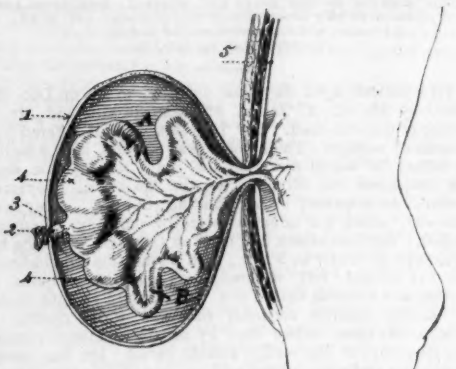

Diagram of sac with its contents. A B, Limits of excised portion of small intestine. 1. Thick-walled opalescent sac. 2. Stump of cord ligated at birth. 3. Meckel's diverticulum. 4. Sacculated portion of small intestine. 5. Parietal peritoneum.

to the interior of the sac at the site from which the cord had been cut after ligation at birth. That portion of the small intestine from which the diverticulum arose was dilated into three saccules resembling in appearance and size large intestine but devoid of appendices epiploicæ. The diverticulum, which was patent at its enteric attachment but blind towards the apex, arose from the free border of the middle saccule. This condition constituted one reason why the reduction of the contents from the sac was impossible. The second reason was due to the fact that the small size of the opening in the abdominal wall would not permit any of the distended coils of the intestine in the sac to be pushed back through it. Even after the intestines had become collapsed their size was so much greater than this opening as to suggest that the whole condition had been brought about by premature closing of the abdominal wall during development and that the intestines excluded in the sac had subsequently continued to grow. The sac was therefore cut away around its base and clamps then applied to the intestine so as to permit of excision of the anchored portion of the gut from which the Meckel's diverticulum arose. This portion included apparently normal small intestine on either side of the three saccules and measured 6 to 7 inches in length. After closing the two ends a lateral anastomosis was performed in the usual way. As the effect of the spinal anæsthesia was now beginning to wear off a second dose was given, and then the opening in the abdominal wall was enlarged so that the entrapped part of the intestine could be inspected and reduction of the extruded portion effected. This was easily achieved, and almost immediately afterwards the child passed a large quantity of meconium per rectum. The edges of the sac

[1] THE LANCET, Feb. 5th, 1910. p. 364.
[2] Proceedings of the Royal Society of Medicine, 1909, vol. ii.
[3] THE LANCET, Sept. 25th (p. 913) and Oct. 2nd (p. 991), 1909, and June 11th (p. 1611), 1910.

were then trimmed and the laparotomy wound closed by deep and superficial sutures. A noticeable effect of the spinal injection was an immediate improvement of the pulse-rate with a cessation of retching and vomiting.

The recovery was uneventful and the stitches were removed from a perfectly healed wound on the tenth day. The bowels acted normally during that period, and after the first 36 hours there was no vomiting. But the patient was an undersized weakly infant, and at the end of a fortnight was sent home with the hope that his mother's milk, which had been maintained for him, would enable him to thrive. Unfortunately this was not the case, and he died a fortnight later, the cause of death being certified as marasmus. A post-mortem examination was not obtained.

Welbeck-street, W.

A CASE OF SEVERE VERTIGO:

DESTRUCTION OF THE LABYRINTH; CURE.

BY MACLEOD YEARSLEY, F.R.C.S. ENG.,

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THE patient, aged 31 years, was sent to me on Dec. 9th, 1909, by Mr. C. A. James, of Stamford-hill, and Mr. E. Jones, of Goswell-road. For 11 years she had suffered from attacks of vertigo. Their onset was sudden, with a feeling of falling, in which direction she could not say, nor could she determine the direction of the horizontal movement which was apparent in surrounding objects. They were followed, about ten minutes later, by vomiting, often prolonged. Her last attack had been on Dec. 7th, when she had awakened suddenly at 3 A.M., with a sensation of giddiness, got out of bed, fell, vomited, and was incapacitated by vertigo and sickness until 8 P.M. Occasionally slight hissing or buzzing tinnitus occurred and was worse during the vertigo, but these noises were by no means always present. The frequency of the vertigo attacks varied; she had passed three years and nine months without one of any severity, but they had of late become more frequent and more severe, and, during the summer of 1909, she had four bad attacks in ten days.

The patient was a hard worker, abstemious, and, apart from her vertigo, in good health. She began, however, to be in constant dread of the attacks, fearing lest she should fall into the fire or sustain other serious injury during their occurrence. Her appetite was not good, but she had no dyspeptic symptoms and never vomited save during an attack of giddiness. A general examination revealed no physical signs.

The patient was deaf on the right side, and she stated that she had discharge from that ear for 18 months after an attack of diphtheria at 18 years of age. On examination the lower half of the inferior segment of the right tympanic membrane was thickened and opaque. The remainder of the membrane was thin and flaccid, especially in the superior posterior quadrant, which appeared to be adherent to the head of the stapes. The left membrane showed inferior thickening. There was nothing noteworthy to be seen in the nose and throat.

Caloric tests were postponed, as the patient was some way from home and did not wish to risk the possible induction of an attack of vertigo. She showed slight horizontal nystagmus on lateral deviation to either side, equal, and probably physiological. Romberg's test showed a tendency to sway towards the right.

Functional tests gave the following results:—Weber: lateralised to the left. Acoumeter: voice and whisper; R., 15 feet; L., *nil*; Rinne: R., double negative; L., positive. Bone conduction: R. greater than -20 sec; L., -5 sec. Galton-Edelmann whistle: R., 18 580·96 D.V.; L., 40,000 D.V. In the lower part of the scale she could hear no fork on the right side until C 256 was reached, for which she had perception only.

The patient was placed upon general treatment, with large doses of bromide, but this (and later quinine, asafœtida, &c.) had no effect. Seen again on March 30th, 1910, she had had several bad attacks, with severe vomiting. She had noticed that she tended to fall towards the right, and complained that the vertigo left her much more weak than formerly. The caloric test was performed by the house surgeon (Dr. H. More), who found that marked and rather coarse nystagmus to the right occurred after 30 seconds. The question of operation was placed before the patient, who readily consented.

Operation.—On May 28th, 1910, the patient was anæsthetised by Mr. J. Ward Lawson, and the right auricle was turned down by means of Lake's incision. A wide radical mastoid operation was performed; the spine of Henle was well marked, the mastoid being of the infantile type. The antrum was reached quickly, and was found to be of about the size of a split pea. The bridge was removed, leaving the tympanic membrane intact, which, after the extraction of the incus through the antrum, was removed by cutting round with a Sexton's knife. The stapes, with the tendon of the stapedius, having been taken away, the wound was enlarged by the smoothing down of the buttress and all overhanging projections, and a good view of the operation field was thus obtained. One or two facial twitches were noted when working near the pelvis ovalis, and it was found that the seventh nerve was partially exposed in that region. The ampulla of the external semicircular canal having been opened with a fine chisel, that passage was followed into the vestibule, which was thoroughly curetted and swabbed out with a solution of formalin. The tympanic ostium of the Eustachian tube was curetted, the wound was packed, and the auricle was readjusted.

The first dressing was made on May 31st, and nearly all the stitches were removed. No pain or headache was complained of after the operation, and the temperature did not rise throughout the convalescence. There was, however, considerable vertigo, but getting markedly less. The patient left the hospital on June 8th. She still had slight vertigo, but no nausea.

On June 15th she mentioned that she experienced slight staggering when walking, and there was marked nystagmus on deviation to the right. On June 29th she stated that she could walk better and had no vertigo, but on July 6th she said there was always a slight dizziness after walking. The ear healed without complication in about six weeks. The last occasion that she was seen was on Oct. 5th, 1910. She could then walk quite straight; there was no nystagmus, and the feeling of giddiness after walking had almost disappeared.

The patient subsequently obtained a post some distance away, and in a letter dated May 3rd, 1911, she wrote:—

> I am pleased to say that my health generally is much improved and that I have had no attack of sickness until about a fortnight ago, when, after retiring to bed quite well, I was woke up by being sick, but felt no giddiness whatever. I, however, have a tendency to fall, or rather lean to the right side, after having walked for about half an hour; it seems I cannot walk straight, going from left to right unless guided by someone. Otherwise I must say that I am feeling very much better than I was a year ago.

She is now married, and her last letter, dated Jan. 19th, 1912, was in reply to one sent for the purposes of this article. She has replied thus to the following questions:—

1. *Q.* Do you have attacks of giddiness such as you used to experience?—*A.* On an average once in two days I seem to get a giddiness pass through the whole of my body, lasting not more than five minutes.
2. *Q.* Have you any noises in the ear operated upon?—*A.* Occasionally a sound, as of gas; no particular time have I noticed this.
3. *Q.* What is the state of your health generally.—*A. Excellent.*
4. *Q.* Have you any attacks of vomiting?—*A.* None, and never felt the slightest whatever.
5. *Q.* Have you still a tendency to lean towards the right side after walking?—*A.* Yes, but it is getting less.
6. *Q.* Have you any difficulty in walking straight?—*A.* I'm afraid this is the greatest of all questions to answer. I certainly cannot walk straight for more than ten minutes when walking quite alone.
7. *Q.* Have you any difficulty in walking or finding your way in the dark?—*A.* Yes; I seem to get a very unpleasant sensation when in the dark; seem to lose control of myself; afraid to venture further on; *cannot imagine a clear space before me*, although I may be certain in myself that the way is clear.

I think, from these replies, that the case may be regarded as a success. The patient is able to live in comfort and no longer has a sudden attack of vertigo, with nausea and vomiting, hanging over her, with the possibility of it lasting for hours. Her replies to the questions are interesting, especially to No. 7, in which I have italicised one sentence.

In the first case of this operation reported by me[1] the patient has since complained of his complete loss of the sense of space when in the dark. A recent experiment, conducted with Dr. F. L. Golla, shows that when rotated even a quarter of a circle with the eyes closed this earlier patient loses all

[1] THE LANCET, Sept. 19th, 1908, p. 871; June 19th, 1909; Feb. 4th, 1911, p. 330.

sense of locality. In this case both ears have been destroyed—the one by operation, the other by disease—and the patient is stone-deaf. I was, therefore, inclined to attribute the effect of darkness to his inability to hear, as much as to the loss of the sense of space. In the later case, however, hearing on one side, as also the vestibule, is normal, yet she has also this sense of insecurity in the dark, although to a less degree.

The investigation of congenitally deaf children, with a view to discover their sensations when in the dark, gave negative results. They appeared to have no difficulty in finding their way and to experience no sense of insecurity, even although rotation with closed eyes (in a series of experiments conducted with Dr. Golla) failed to make them giddy or to disturb their sense of localisation in space. Most of these children had no idea of what giddiness meant.

I have surmised, therefore, that in the case of congenitally deaf children the absence of function in the vestibular apparatus has been compensated by a better development of the muscular sense; and that, in the two adult cases here referred to, that sense has not yet had time to adapt itself to the altered circumstances.

So far as I know, no record has yet been made as to the sensations experienced when in the dark by those who have been deprived of their vestibular apparatus by operation or disease. Perhaps others who have operated upon the labyrinth may be able to throw further light upon the subject.

Queen Anne-street, W.

REMOVEABLE BLADDER SUTURES.

BY COLIN CLARKE, M.B., B.S. LOND., F.R.C.S. ENG.,
LIEUTENANT, R.A.M.C.

THE following method of closing the bladder, with removeable tube sutures, after suprapubic cystotomy, worked so satisfactorily in a recent case that I have ventured to describe briefly the operation.

A private in the 2nd Devonshire Regiment was admitted into the Military Hospital, Cottourra, Malta, in July, 1911, suffering from stone in the bladder. Owing to the cystitis present it was decided to remove the stone by suprapubic cystotomy. Under general anæsthesia the bladder was opened above the pubes and a large, nodular, oxalate stone was removed. The bladder was well washed out with boric acid lotion and a No. 8 rubber catheter was secured in the urethra. The incision in the bladder wall, about 2½ inches long, was closed by means of seven tube sutures.

The tube sutures consist of the following parts:—(1) Strands of ordinary strong silkworm gut; (2) short pieces of glass-tubing, 2 inches long and ¼ inch in diameter; and (3) small brass or steel rings, ½ to 1 inch across. The

FIG. 1.

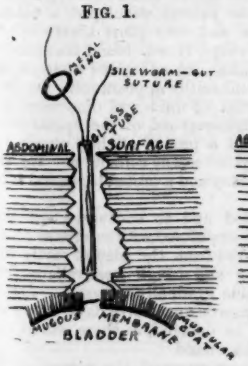
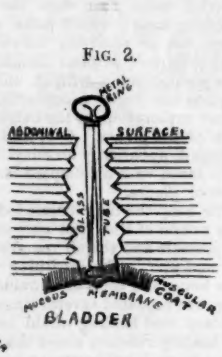


FIG. 2.



sutures of silkworm gut are passed with a curved needle through the muscular coat of the bladder on both sides of the opening. Each suture is inserted not less than ¼ inch from the edge of the incision and emerges on the cut surface, just short of the mucous membrane of the bladder, as in Fig. 1. The two free ends of the suture are threaded through a glass tube and drawn tight; they are then secured in this position by being firmly tied over the rim of one of the metal rings, as in Fig. 2. The loop of silkworm gut which projects from the end of the tube and passes through the bladder wall acts like the loop of a wire polypus snare and holds the two sides of the bladder incision firmly in contact with each other. The other end of the silkworm-gut suture, knotted over the edge of a ring, as in Fig. 2, is on a level with the surface of the abdomen and is easily accessible for the removal of the suture. To remove a suture the silkworm gut is divided close to the knot, and the knotted end is then pulled on until the suture is withdrawn. One hand at the same time holds the glass tube steady in the wound. The silkworm gut remains quite taut after ligature in the tubes, and does not adhere to the bladder wall on removal.

In the case mentioned above seven sutures were inserted to close the bladder opening and five glass tubes were used to hold them. The two lowest tubes carried two sutures in each. The catheter tied in the urethra was connected with a piece of rubber tubing, which passed into a bowl of antiseptic lotion under the bed. The abdominal incision was partly closed, just sufficient opening being left for the passage of the five glass tubes to the surface.

The suprapubic wound was dressed on the day following the operation, and then on every other day until the eighth day after the operation. For the whole of this time the wound remained clean and free from urine. A slight serous discharge from the granulating wound coagulated and glued the dressings to the tubes and rings. The patient was perfectly comfortable, and the whole of the urine drained away through the catheter in the urethra.

On the eighth day after the operation the tube sutures were removed and the catheter was withdrawn from the bladder. Within a few hours following the removal of the tube sutures urine began to escape from the suprapubic wound, this being the first time for urine to appear since the operation, and a small urinary fistula formed. A catheter was again secured in the bladder and a firm pad of dressings applied to the suprapubic wound. Urine continued to escape from the incision for the whole of the eighth day, but on the ninth and tenth days it greatly diminished, and on the twelfth day it entirely ceased. After this the wound rapidly healed.

I regret now that the tube sutures were not left in position for another four or five days. Eight days form apparently too short a time in which to obtain firm healing of the bladder incision. As long as the tube sutures were left in position the bladder wound remained water-tight and no urine escaped. The urinary fistula which formed after the removal of the tube sutures was only a small one and closed in four days, the suprapubic wound at this period being in an advanced state of healing by granulation.

The tube sutures appear to have some advantages in closing the bladder after suprapubic cystotomy.

1. The tube sutures are easy to insert and to remove.
2. No buried sutures are left in the bladder wall to form a focus for suppuration.
3. The bladder can with safety be sewn up after cystotomy and the patient saved the discomfort of suprapubic drainage.
4. In septic conditions of the bladder the glass suture tubes provide a ready channel of escape for any inflammatory exudates which may collect along the bladder incision.
5. In cases where the bladder has to be reopened after operation, as, for example, to arrest hæmorrhage, remove clots, or provide drainage, the suture tubes afford a ready guide to the bladder incision.

Malta.

ASSOCIATION DES MÉDECINS DE LANGUE FRANÇAISE.—The Thirteenth Congress of French-speaking Physicians will be held at Paris from Oct. 13th to 16th inclusive. The subjects appointed for communications and discussion are: 1. Oxalæmia and Oxaluria. M. Loeper, of Paris, will open the subject with a general exposition, and M. Lambling, of Lille, will give a Chemical Study of Oxalæmia and Oxaluria. 2. Acute Infectious Colitis. M. Cade, of Lyons, will speak of Acute Infectious Colitis in the Adult, and MM. Hutinel and Nobécourt, of Paris, of Acute Infectious Colitis of Infants. 3. The Therapeutics of Hæmorrhagic Syndromes. M. Carnot, of Paris, will open with a general exposition of the subject. M. Sabrazès, of Bordeaux, will discuss the Examination of the Blood in the Diagnosis of Hæmorrhagic Syndromes, and M. Nolf, of Liège, the Physio-pathology of Coagulation of the Blood. Other proposed subjects are: (1) Anaphylaxis Clinically Considered; and (2) Anti-typhoid Vaccination. The secretary-general is Professor Bard, 44, Boulevard des Tranchées, Geneva.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

ABDOMINAL SECTION TWICE ON THE SAME PATIENT FOR ACUTE INTESTINAL OBSTRUCTION DUE TO VOLVULUS.

BY GEORGE HEATON, M.B. OXON., F.R.C.S. ENG.,
HONORARY SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM.

THE following case is of some clinical interest, as the patient has had two attacks of acute intestinal obstruction, due to a volvulus of the sigmoid colon, with an interval of two and half a years between them. The clinical notes of the case are as follows.

First attack.—The patient, a girl aged 16 years, was seen in consultation with her medical attendant on Dec. 16th, 1908. She had then been acutely ill for three days with abdominal pain, vomiting, and complete intestinal obstruction. She was, congenitally, somewhat hydrocephalic, and had since birth suffered from choreic movements of the left side of the body and left limbs. The rhythmical choreic movements involved all the muscles of the left side of the abdomen. She had always suffered from constipation.

Three days previously the constipation had become absolute and the abdomen had rapidly become distended. The pain was at first moderate and colicky in character, but became much worse as distension set in. For the previous two days she had vomited occasionally, and latterly the vomited matter had become stercoraceous in character.

When seen the patient had a marked abdominal facies. The abdomen was extremely distended, tender, and tympanitic all over. There was no sign of any external hernia, and a rectal examination revealed nothing abnormal. The temperature was slightly raised and the pulse-rate varied between 90 and 100. The muscles of the left side of the abdomen were in a state of almost continuous clonic contractions, which ceased abruptly at the middle line.

A diagnosis of acute intestinal obstruction was made, and a laparotomy was performed the same evening in a nursing home. A median incision below the umbilicus was made. On opening the abdomen a loop of large intestine, black and enormously distended, presented itself and seemed to fill the entire cavity. It was brought outside the abdominal cavity and opened, several pints of liquid offensive fæces escaping. The opening was then closed and the bowel was examined; it was found to be an enormously distended sigmoid colon, twisted on its own mesentery from right to left. The bowel was untwisted without difficulty and returned into the abdominal cavity, which was then closed.

Convalescence was uneventful, except that constipation was always a troublesome symptom, and despite the almost constant movements of the muscles of the left side of the abdomen the wound healed by first intention. Her health, except for this constipation, remained good for two and a half years.

Second attack.—On July 22nd, 1911, the patient ate a number of gooseberries, and was seized with acute abdominal pain, with diarrhœa and sickness. This was at first attributed to her error in diet; but the vomiting continued, constipation with rapid abdominal distension set in, and she became daily worse. On July 28th I again saw her. The abdominal distension was then very great, and her symptoms and condition were practically the same as in her previous illness.

Abdominal section was again performed. There were no intra-abdominal adhesions. The sigmoid colon was again found twisted from right to left, enormously distended, and quite black in colour. It was opened and its contents were evacuated. The volvulus was untwisted, and the abdomen was then closed. The bowels were opened naturally soon after the operation. She had a good deal of bronchitis and a very troublesome cough; and the wound, which had been slightly infected during the operation, developed some stitch suppuration, necessitating a somewhat early removal of the stitches.

On August 3rd, after a violent attack of coughing, the scar gave way, and a large number of coils of small intestine and some large intestine were prolapsed into the dressings. She was again anæsthetised, and after carefully cleansing the prolapsed coils and removing the wool which clung tenaciously to them, they were with a great deal of difficulty returned, and the abdominal wound re-sutured. There was no further trouble. She made a slow but uninterrupted convalescence, and has remained in good health since.

Remarks.—The case has several interesting clinical features. Volvulus is very uncommon in young subjects, and it is the only case of the kind I have seen in so young a patient. The recurrence of the volvulus, after an interval of two and a half years, illustrates the well-recognised tendency there is for this form of obstruction to recur. The clonic movements of the abdominal muscles on the left side made me fear for the union of the abdominal wound, and probably in some degree contributed to the reopening of the wound after the second operation.

The question of excision of the distended and twisted bowel—to prevent a recurrence of the volvulus—was raised during the second operation. The patient's condition, however, precluded its performance at the time, and I am afraid the parents would not give their sanction to any such operation now the patient is well.

Birmingham.

A CASE OF POST-OPERATIVE PNEUMOTHORAX TREATED UNDER NEGATIVE PRESSURE.

BY ROBERT NAIRN, F.R.C.S. ENG.

THE following notes of a rather uncommon condition may be interesting.

The patient was a healthy-looking boy aged 8 years. His family history was good. Previous history: He was quite well till the middle of June, 1910, when he was feverish for a few days and later developed whooping-cough. There was no history of pain in the chest. He was first seen by me on August 31st. He was then convalescent from whooping-cough. For two days he had had a temperature of about 103° F. and frequent distressing cough. On examination there was localised fluid at the left infrascapular region adjacent to the middle line. The diagnosis lay between localised pleuritic effusion and hydatid of the lung, with in either case probably commencing suppuration. As the patient had never had any pain, nor even discomfort, hydatid seemed to be the most likely explanation.

On Sept. 2nd, assisted by Dr. W. W. Moore, a portion of rib was excised, but a small opening in the pleura proved that the lung was not adherent. As it was uncertain whether the underlying pleura was diaphragmatic or visceral, the wound was packed with gauze and left for four days. During these four days the patient developed a constant hacking cough, rapid pulse, and very short breathing. On Sept. 6th, on removing the plugs, it was found that the lung had collapsed without forming any adhesions whatever, and the pleura had a whitish unhealthy appearance. On introducing the finger a collection of fluid was discovered after some exploration in the neighbourhood of the spinal reflection of the pleura. Over half a pint of slightly cloudy fluid escaped, apparently an encysted serous collection. We were now faced with a collapsed lung and a probable general infection of pleura.

To keep the lung expanded and to encourage adhesions the wound of the chest wall was closed with sutures as closely as possible and the air removed from the pleural cavity with an aspirator. The breathing and cough were relieved for a few hours and then the trouble gradually returned. Aspiration was repeated several times on successive days, but it was evident that healing would be delayed, as there was no sign of healthy reaction about the wound.

On Sept. 9th the sutures were removed, the pleural cavity was washed out with hydrogen peroxide, and then first a breast-pump and afterwards a Bier's cup was put over the wound and retained in place with strapping and the air partly exhausted. At first the lung expanded fairly well, but the œdema of the wound surfaces soon prevented the cup from maintaining negative pressure in the pleural space. A No. 12 Jaques catheter was then introduced about 4 inches, and cut off about an inch outside the skin level, to preserve communication between the cup and the pleural space. After this there was no further difficulty; the pleura and wound

rapidly grew clean with daily peroxide douching and the cup was left off by Oct. 7th as the wound of the pleura was closed. On Dec. 15th, on examining the chest the lung was found to have fully expanded, with no friction or other unhealthy sound. The patient was in robust health and gaining weight.

The satisfactory result is no doubt to be attributed to the fact that the lung was never permitted to remain collapsed for any length of time, and thus its elasticity was preserved. The defective healing powers of the wound were due to the recent whooping-cough. The method opens up a possibility of further use of such a simple apparatus in operations involving the pleural cavity, especially as the œdema of the outer parts of the wound impaired their vitality enormously.

Hastings, N.Z.

NOTE ON A CASE OF COLD ABSCESS OF THE ABDOMINAL WALL.

BY G. MACDONALD, M.B., CH.B. EDIN.,
HOUSE SURGEON, SCARBOROUGH HOSPITAL AND DISPENSARY.

IN a recent clinical lecture at the Trousseau Hospital M. Savariaud commented on the rarity of cold abscess of the abdominal wall.[1]

On Jan. 1st last a female, aged 19, was admitted to Scarborough Hospital suffering from this complaint. This same patient had been admitted to the hospital on Jan. 18th, 1911. The diagnosis then made was tuberculous peritonitis. Laparotomy was performed, the abdomen being opened in the middle line. A considerable quantity of serous fluid was evacuated and the peritoneum was found to be very considerably thickened. The intestines were adherent to one another and were covered with lymph. The Fallopian tubes, sausage-shaped, bent and covered with adhesions, were removed. The abdominal cavity was drained and the patient made a good recovery. After being discharged from hospital she continued to attend regularly every three weeks as an out-patient.

Three months ago the patient complained of pain on the right side of the abdomen. On examination a small swelling of about the size of a pigeon's egg could be made out in the right hypochondriac region just below the ribs. As the swelling gradually enlarged the pain subsided. The swelling eventually reached about the size of a hen's egg. It had a solid consistence. It did not move with respiration but hardened and disappeared almost completely during contraction of the abdominal muscles. A diagnosis of cold abscess of the abdominal wall was made and the patient was admitted to hospital. She showed no signs of any constitutional disturbance. On admission the temperature was 98° F. and the pulse was 84.

On Jan. 4th an operation was performed. An incision was made over the swelling. A cyst was found embedded in the abdominal muscles, and on opening it about an ounce of pus was evacuated. Iodoform emulsion was introduced and the wound was stitched up, some gauze drainage being inserted at one end of the wound for the first 48 hours. The patient has made an uninterrupted recovery.

The case is interesting from the fact that, according to M. Savariaud, cold abscess of the abdominal wall is usually a primary manifestation of tuberculosis, whilst in this instance it was obviously secondary to the tuberculous peritonitis, infection most probably having reached the abdominal wall by way of the subperitoneal lymphatics.

I am indebted to Dr. J. H. Thornley, honorary surgeon to the hospital, for leave to publish notes of this case.

Scarborough.

[1] THE LANCET, Jan. 6th, 1912, p. 42.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. Francis Tagart, of Old Sneed Park, near Bristol, the University of Bristol and the Bristol Royal Infirmary each receive £1000. Mr. Tagart was for many years connected officially with the Royal Infirmary as a member of the committee.—The Chelsea Hospital for Women has received a donation of £200 from Mr. R. Nivison and a £10 note (placed in letter box) from an anonymous donor.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Exhibition of Cases.—Congenital Absence of the Left Half of the Diaphragm Simulating Pneumothorax.

A MEETING of this section was held on Feb. 9th, Sir WILLIAM OSLER, the President, being in the chair.

Mr. F. J. STEWARD showed a case of Excision of Epithelioma of Lower End of Pharynx. The patient, a woman aged 40, was admitted into Guy's Hospital on July 3rd, 1911, with a three months' history of pain and difficulty in swallowing. She could take fluids only, and these with difficulty. Endoscopic examination on July 4th revealed a growth involving the anterior and left lateral aspects of the extreme lower portion of the pharynx. Nothing could be felt externally, and there was no evidence of glandular infection. July 11th: Angular incision, transverse limb over thyrohyoid membrane on left side, longitudinal limb downwards along left sterno-mastoid. Depressor muscles, thyrohyoid membrane, superior cornu of thyroid cartilage, and left lateral wall of pharynx divided. From this point the anæsthetic was administered through a tracheotomy tube passed into the upper opening of the cocainised larynx, the tube being packed round with a gauze strip. The extent of the growth could now be examined with the finger; it was found to be quite small, involving principally the anterior and left lateral walls of the lower end of the pharynx and the upper portion of the œsophagus, and freely moveable on larynx and trachea. In order to give further access during the remaining stages of the operation the left lobe of the thyroid gland was then removed as it was slightly enlarged. By tilting the larynx over to the right and drawing the sternomastoid and carotid sheath backwards the site of the growth was brought well into view. The growth, which was about the size of a sixpenny-piece, was excised, together with a margin of healthy tissue about three-quarters of an inch wide. This involved the removal of the whole circumference of the œsophagus with the exception of a narrow strip of its right posterior wall, and exposed most of the posterior surface of the cricoid cartilage and the upper three rings of the trachea. Catgut sutures were then used to bring together the thyrohyoid membrane, the upper part of the pharyngeal incision, the muscles, and the transverse limb of the skin incision. A soft rubber feeding tube was then passed from the lateral incision into the œsophagus, fixed in position by a suture, and packed round with gauze. The patient stood the operation fairly well, but she was rather collapsed, no doubt owing to previous semi-starvation. She made good progress, the wound being kept sweet by daily dressing and syringing with hydrogen peroxide. August 3rd: Tube removed and replaced by one passing through the nose, the wound in the neck being allowed to granulate. This tube was kept in place for ten days, and as the wound was then nearly closed the patient was allowed to take food naturally, bougies being passed daily. Trouble then began owing to difficulty in keeping the stricture dilated, and on several occasions anæsthetics were needed in order to pass a bougie. Finally, as the stricture rapidly contracted in spite of all attempts to keep it dilated, and swallowing became extremely difficult, Mr. C. H. Fagge reopened the upper end of the œsophagus through the neck and passed a tube. Hoping that the continual swallowing movements would dilate the pharynx above the stricture, the patient was sent home on Oct. 10th. She was readmitted on Nov. 2nd, and endoscopic examination then proved that considerable dilatation had taken place, and after some little trouble a bougie was forced through the stricture, which was then dilated and a rubber tube passed through it from the nose and left *in situ*. The patient bore the inconvenience of the tube for ten days, when it was removed. From this time no further trouble had been experienced, the stricture having been kept dilated by passage of bougies. This was done three times a day at first, and the frequency gradually diminished, so that when she left the hospital on Dec. 10th she was having a No. 18 bougie passed once every two days.

and this she had continued to do herself since. The section of the growth which was exhibited showed it to be a typical epithelioma. The growth was removed as described, without sacrificing the larynx and without removal of glands, because it was clearly very recent, and, moreover, its free mobility on the underlying structures led Mr. Steward to hope that it was in the primary stage, so that local removal would give a fair chance. He would call attention to the extreme importance of not closing the wound after operations upon the pharynx. This method of wound treatment, although perhaps less artistic, was much the safer, for in this way the risks of secondary hæmorrhage and septic infection of the air passages were reduced to a minimum. The plan of administering the anæsthetic through a tube inserted into the cocainised upper opening of the larynx had proved very useful in these cases; it was quite convenient and satisfactory, and, moreover, avoided the risks associated with a tracheotomy opening. There was no sign of œdema of the glottis afterwards, although the mucous membrane was divided close to the arytenoids. The way in which the stricture was overcome by allowing the lower end of the pharynx to dilate was very striking, the extra amount of mucous membrane so formed being evidently sufficient to bridge the gap caused by the operation, as there has been no further difficulty since the final communication with the œsophagus was made.

Dr. FREDERICK LANGMEAD showed a case of Anomalous Œdema. The patient, a girl aged 18, since the age of 12 had suffered from an unexplained œdema. It began in the legs, the left being affected first. This leg had been encased in plaster-of-Paris at that time, and afterwards put up in a Thomas's knee-splint. There was no record to show why this was done, but the patient said that it had never been painful. When the plaster was removed the swelling recurred and was unaffected by splinting, but, on the contrary, a similar swelling began in the other leg. The ankles were affected first. She came under the exhibitor's observation in March, 1910, for a similar condition of the hands, at first in the left and shortly afterwards in the right. In the hands the swelling started on the dorsal aspects. The condition then found had persisted, but fluctuated considerably in intensity. Symmetrical œdema of all four limbs was present, accompanied by blueness, coldness, and sweating. The œdema was most marked in the legs and usually was confined below the knees, but had extended above on one or two occasions. Sometimes pitting could not be obtained by pressure; at other times firm pressure caused it. As in the legs, so also in the arms the œdema was most pronounced at the distal extremities. It lessened if the parts were raised, and increased if they were allowed to hang down. It was almost or completely absent in the morning, but gradually increased during the day, especially if the patient stood much. The dependent position of the arms during a washing-day was always followed by considerable swelling of the hands. The blueness was intensified by cold, to which she was very susceptible, but no sequence of events as occurs in Raynaud's disease was detectable. No redness, throbbing, or burning (suggestive of erythromelalgia) had been noted. The hands and feet were always clammy, not infrequently beads of sweat standing out from the skin, and were cold at the same time. Recently she had complained of swelling of the cheeks after meals, which subsided in an hour or so. She was very prone to septic sores. Any slight injury produced a sore, which exuded clear fluid freely, and a sodden, indolent ulcer resulted which healed with difficulty. Reddish-purple swellings had occurred occasionally in the œdematous regions, looking like chronic abscesses. A few of these had suppurated, but the majority subsided. On one occasion staphylococcus aureus, and on another a streptococcus, was isolated from the discharge. There was no sign of heart or kidney disease. The blood count was normal. The patient's general health was very good. She did her work as a general servant without trouble until the evening, when the swelling of her hands and feet caused her difficulty in holding small objects (such as a needle) and in walking. She was the only child; no history of any similar affection in the family could be elicited. The only treatment which had been beneficial was the use of elastic stockings. Thyroid extract had made no difference.

Dr. F. PARKES WEBER showed a case of Diffuse Symmetrical Lipomatosis. The patient was a man of good muscular physique, but had a number of soft subcutaneous swellings characteristic of diffuse symmetrical lipomatosis. These were situated on both sides, in the mastoid, parotid, deltoid, and inguinal regions, and also in the middle line, just below the chin, above the sternal notch, and over the symphysis pubis. They had been noticed first about four years ago, and were neither painful nor tender to palpation; neither did the patient suffer from rheumatic or other pains. The thyroid gland appeared to be well developed. The liver could not be felt, but there was a suspicion of commencing cirrhosis. The conjunctivæ over the sclerotics had a yellowish tinge. The urine (January, 1912) was of high colour, of specific gravity 1025, and free from albumin, sugar, and bilirubin. The patient had been accustomed to take much alcohol every day for years; he had severe pleurisy some years ago, and gout in both big toes about three years ago; he was subject to hoarseness; he denied having had any venereal disease, and said he had never noticed any sexual impotence; he had children living. The case was a good example of diffuse symmetrical lipomatosis occurring, as it generally does, in a man of robust build, who had been accustomed to rather free and habitual indulgence in alcohol.

Dr. PARKES WEBER also showed a case of Osteitis Deformans (Paget's Bone Disease) with Chronic Eczema. The patient, aged 70, presented the typical thickening and bending of tibiæ and femora characteristic of osteitis deformans. The disease was of only moderate degree and was limited to his lower extremities. The changes were first observed in the left tibia six years ago, and were best marked in that bone and the left femur. The eczema, to which he had been subject more or less for many years, chiefly affected his legs. The patient had enjoyed good general health usually, but had suffered twice from rheumatic fever, 40 and 20 years ago respectively. There was no history of venereal disease. Nothing abnormal could be discovered in the thoracic or abdominal viscera or in the urine. A noteworthy feature of the case was that there had been no pain connected with the bone disease.

Dr. GEORGE F. STEBBING showed a case of Persistent Nystagmus associated with periodical vomiting. The patient was aged 28. At the age of 21 he had had seven fits during one week, but had had no others. In these fits, of which he had no warning, he was unconscious and incontinent; he bit his tongue once and twice "bruised his eyes." Fifteen years ago the patient began to have pains in the lower and back part of the head, and these pains had remained since. Ten years ago one day he ate his tea with a good appetite and soon afterwards, without any feeling of sickness, vomited it; later, the same thing occurred with his supper. For several days he vomited everything he swallowed, and then regained his usual health. Ever since he had been subject to attacks of vomiting which lasted from a few days to six or eight weeks. These attacks were gradually becoming more frequent and more severe, and he stated that he had lost flesh considerably. During these attacks he sometimes felt sick, but in many of them he vomited without any sensation of sickness. Since these attacks of vomiting started he had had pain in the lower part of the abdomen; he stated that it was not relieved, but was occasionally made worse, by the act of vomiting. Three and a half years ago his friends told him that "his eyes were always moving about." Two years ago both his legs began to get weak so that he became unable to stand without support, and one year ago he "lost all feeling in them." The patient was thin, but did not appear to be markedly wasted. He had nystagmus, which was most marked while the eyes were at rest, and was of a mixed type, consisting of coarse horizontal movements with a fine rotatory movement superadded. The nystagmus was present in all positions of the eye, but was more marked when the patient was looking to the left than to the right, and was only slightly marked when he was looking up or down. There was a slight degree of hippus. The fundi were quite normal. The patient could read small newspaper print; he got tired after reading for about half an hour. There was marked loss of power in both legs, but very little wasting. Knee-jerks were present; the plantar reflexes were sluggish, but when obtained were both flexor. There was anæsthesia of both legs of the "stocking type." The Wassermann reaction was negative, and large doses of potassium iodide combined with mercury, administered for a period of six weeks, did not produce any change in the patient's condition.

Dr. HECTOR MACKENZIE and Mr. W. H. BATTLE showed a case of Hirschprung's Disease: Congenital Dilatation of

the Colon. The patient, a girl, aged 9, was admitted under the care of Dr. Mackenzie into St. Thomas's Hospital on Nov. 27th, 1911. When a baby she had suffered from attacks of diarrhœa. Since the age of 4, when she had broncho-pneumonia, she had suffered from constipation. A year ago the constipation was accompanied by pain and vomiting. This occurred without any relation to food. She was treated for tuberculous peritonitis. The constipation and other symptoms had increased since that time, and had been bad for five weeks, a purgative being required every other night. The pain had been very severe at times, the child having been doubled up with it. On admission moderate distension of the abdomen was present, more marked on the left than on the right side, and most evident in the upper part. On inspection, particularly after palpation, slow waves of peristalsis were seen, most marked in the umbilical region, and seeming to travel from left to right, but also present over the descending colon and passing downwards, but without pain. A tympanitic note was obtainable all over the abdomen. Occasional attacks of pain accompanied the peristalsis later, occurring nearly every day, but varying in time of onset. The abdomen generally was larger than normal and the sigmoid was easily felt. X ray examination after giving a bismuth meal showed that it all went to the right side just above the iliac crest. Four days later, there having been one action of the bowels, there was still some bismuth low down in the mid-line of the pelvis.

Dr. HERBERT FRENCH showed a case of Tabes Dorsalis with one Knee-jerk Absent and the other Brisk. The patient had gonorrhœa when aged 16, for which he was treated for six weeks at St. Thomas's Hospital, but was not aware of having had a chancre. His wife had had one miscarriage, but no living child. The Wassermann reaction was positive. Five years ago he suffered from pain in his right foot, spreading thence to the right ankle, and after a few weeks upwards into the calf of the right leg; since that time he had been subject to shooting pains which were confined to the right leg, never affecting the left, and at the same time whilst the left leg felt to him normal, the right had become numbed, cold, and affected by a feeling which he described as one of uselessness, although objectively he could move it very well. Perhaps the most striking feature about the case was the fact that whereas the right knee-jerk was entirely absent, the left was not only present but was even brisker than normal.

Mr. BATTLE showed a case of Neuro-fibroma of the Supra-orbital Nerve in the Orbit.

Dr. WILFRED HARRIS and Mr. W. H. CLAYTON-GREENE read a paper on a case of Congenital Absence of the Left Half of the Diaphragm, simulating Pneumothorax.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Feb. 2nd, Dr. STCLAIR THOMSON, the President, being in the chair.

The following cases and specimens were shown:—

Mr. HERBERT TILLEY: 1. A Specimen and Section of Discrete Angioma of the Nose, which had been removed from a young man, aged 17, who applied to hospital for severe attacks of nose bleeding, which had rendered him very anæmic and weak. 2. A case of Enlargement and Distension of the Bridge of the Nose in a patient suffering from Nasal Polypi and Pansinusitis. The upper regions of the septum were also thickened and considerable periostitis of the bones seemed to be present.—The PRESIDENT, commenting on the appearances, remarked that in the cases he had seen, as in the present case, there had been no evidence of syphilis.

Mr. J. EVERIDGE: A case of Ulcerated Growth of the Larynx with a Negative Wassermann Reaction.—In the opinion of most of the members the disease was regarded as a tuberculous deposit.

Mr. C. A. PARKER: A Thyroid Tumour at the Base of the Tongue in a girl, aged 16 years. The tumour was so large as to call for removal, but the apparent absence of any thyroid gland in the neck had led to hesitation in operating. The suggestions offered by members to avoid the difficulty were that the tumour might be dislocated from its buccal site to a position deeper in the tissues of the tongue, or that a partial excision only should be made.

Dr. W. H. KELSON: A Swelling in the Right Tonsillar Region in a woman, aged 24, with a hard mass at the angle of the jaw. The swelling also involved the lateral pharyngeal region above and behind the tonsil. The disease was generally regarded as inflammatory, possibly originating in a chronic suppuration of the ear from which the patient was suffering.

Dr. ANDREW WYLIE: A case of Paralysis of the Soft Palate dating from a sore throat several weeks previously. Repeated bacteriological examinations had failed to disclose the presence of the Klebs-Löffler bacillus, and several of the speakers referred to the elusive character of this organism as a fact which renders a negative finding of no value.

Dr. G. WILLIAM HILL exhibited a series of skiagrams illustrating (*a*) the palliative action of radium salts in malignant stricture of the gullet; and (*b*) the advantages of the X rays screen for accurately applying a radium apparatus in the strictured area.—Mr. TILLEY and the exhibitor drew attention to the importance of the necessity for the nicest precision in introducing and leaving radium in the œsophagus in cases of malignant stricture.

Dr. JAMES DONELAN: A singer, aged 44, with a growth on the Anterior Third of the Right Vocal Cord, which was regarded as a singer's node.

Mr. CHARLES W. M. HOPE: A microscopical section of a Malignant Columnar-celled Carcinoma of the Œsophagus from a man, aged 25 years. Attention was drawn to the occasional appearance of a columnar-celled cancer in a tube lined by squamous epithelium, and the mode of origin of such growths was adverted to.

Mr. NORMAN PATTERSON: A case of Abeyance of Nasal Breathing of Hysterical Origin, the speech being markedly affected.

Dr. E. A. PETERS: 1. A case illustrating the formation of Bilateral Symmetrical Perforations of the Palate in a case of syphilis. 2. Another case of Tumour of Right Lateral Wall of the Pharynx involving the Right Arytenoid in a woman, aged 27 years.—The advisability of the early examination of such cases by the direct method in order to exclude post-cricoid carcinoma was remarked upon.

Dr. G. C. CATHCART: A case of Sublingual Ulceration of the Floor of the Mouth.—It was considered by certain of the members to be septic in origin.

Mr. G. SECCOMBE HETT: A series of three cases illustrating Cysts of the Larynx. In one the cyst lay on the lingual aspect of the epiglottis; in the second on the vocal cord; while in the third a cyst, or cystic fibroma, was to be seen on the right arytenoid.—Discussing the treatment of laryngeal cysts, several members expressed a preference for the galvano-cautery as compared with their removal by means of forceps.

Dr. J. DUNDAS GRANT: A woman, the subject of Tuberculosis, with an outgrowth from the lower pole of one tonsil.

SECTION OF ANÆSTHETICS.

Chloroform Poisoning.

A MEETING of this section was held on Feb. 2nd, Dr. W. J. MCCARDIE, the President, being in the chair.

Dr. R. S. FREW, in a paper on the Significance of Acetonuria in Children, showed that acetonuria was produced in the child by mere changes of diet; further, that the duration of the acetonuria was about three days, that it was more marked the younger the child, being 100 per cent. in babies changed from breast to artificial feeding and 46 per cent. in children 11 and 12 years of age, the average of all children below 12 years of age being 61 per cent. He further pointed out that by giving dextrose this acetonuria could be made to disappear at any stage within 12 hours, and that the carbohydrate starvation necessary for its production was caused by the digestive instability of children. He drew attention to acetonuria being invariably produced by gross starvation in about 12 hours. It was maintained that both these conditions obtained in the preparation of the child for anæsthesia, and that this was sufficient to account for the high percentage of acetonuria *after* anæsthesia recorded by various observers, which ranged from 63 to 89 per cent. Dr. Frew pointed out that this acetonuria could be prevented by the administration of dextrose up to and after the administration of the anæsthetic, thus avoiding what must be regarded as an additional risk.

A paper was read from Dr. A. L. M. MUSKENS, of Bergen-op-Zoom, Holland, describing the results of some experiments

on rabbits, made to investigate the after-effects of chloroform. Twenty-five rabbits were kept under chloroform for from one to two hours. Tables were shown illustrating the tissue changes in eight rabbits which died from the effects of the anæsthetic at periods of from 22 to 100 hours, and in eight others which were killed at periods of from three hours to five days after the administration. In the first group all the cases, except one where chronic myocarditis was the cause of death, showed advanced fatty degeneration of the liver amounting in most instances to complete central necrosis; in the rabbits in the second table (except in one case killed immediately after the operation) fatty degeneration was also found, but to a somewhat less-advanced degree than in the first group. Changes in the kidney and heart tissues were much slighter and more variable. Dr. Muskens considered that the liver degeneration was due to the chloroform and was the cause of death in the fatal cases. He suggested that fat and oil should be avoided before an anæsthetic, either in food or drugs, and that cholagogues might be useful afterwards in so far as they tend to remove fat as well as bile from the liver.

Mr. R. E. APPERLY showed some microscopic specimens from livers of rabbits and also of human subjects illustrating the after-effects of chloroform. The rabbits had been kept under chloroform for half an hour daily for several days, and subsequently killed; in one of the human cases the patient had had two anæsthetics at a short interval, the first ether, the second chloroform; he died shortly after the second administration from cerebral hæmorrhage unconnected with the operation or anæsthetic. All the specimens showed fatty changes. Mr. Apperly pointed out that acetonuria occurs after anæsthesia in nearly all cases; after ether the amount is much greater, but falls to the minute trace which may be considered normal in one day; after chloroform the rise is less, being as 20 to 50, but persists in a gradually diminishing degree for four days. This was doubtless to be explained by the fact that chloroform has much more effect upon the kidney than ether and delays excretion. In severe post-anæsthetic vomiting little acetonuria is generally present; when the vomiting stops the acetonuria increases.

Dr. A. L. FLEMMING agreed with the last speaker in regard to the respective effects of ether and chloroform upon the kidney. He stated that in 68 cases where careful examination of the urine had been made far more kidney cells were found after chloroform than after ether, and fatty changes were also present. Acetonuria frequently existed in cases where there was loss of fluid—i.e., vomiting—and he found that where a previous injection of saline had been given there was generally little acetonuria or unpleasant after-effects.

The PRESIDENT read notes of a case of Chloroform Toxæmia after an operation for Cleft Palate on a child aged 2½. The operation was difficult and lasted one and a quarter hours. The anæsthetic was borne perfectly and but little blood was swallowed. At night the child was much collapsed and remained seriously ill all next day, but gradually improved. The palatine flaps sloughed. The same child had had an operation when 12 months old, which was followed by prolonged vomiting. It was noteworthy that this child could not tolerate fat in any form. Cod-liver oil invariably upset him and starchy foods had the same effect. He was subject to attacks of "liver-chill," accompanied by vomiting and diarrhœa. At a subsequent operation ether had been administered for half an hour with no after-effects.

Dr. J. H. THURSFIELD referred to a series of post-anæsthetic deaths which had occurred at the Hospital for Sick Children, Great Ormond-street, in 1907, the causation of which was still under investigation. These deaths occurred under varying conditions and were not to be explained either by the anæsthetic used, the methods of administration, or the preparation of the patient. He thought there was an additional factor still to be discovered. Acidosis occurred in all cases, and in a few passed into acid intoxication. Children operated on in the out-patient room, whether prepared or not, showed reaction next day in 100 per cent. of the cases. Those operated on four or more days after admission were not found to react differently from those operated on immediately. He considered that dextrose had no effect whatever on acid intoxication. Sodium bicarbonate gave better results. He did not believe that the condition of the liver was causative or peculiar to the condition under discussion. The same changes were found in many diseases with quite different symptoms.

Dr. G. W. GOODHART did not agree that the liver changes found in acid intoxication were the same as those in other diseases. He thought that the clear differentiation of three zones was characteristic and not found in other conditions. He doubted whether there was any fatty degeneration of the kidney; this was difficult to prove as fat occurs in quite healthy kidneys.

Mr. G. E. WAUGH objected to the name post-anæsthetic poisoning. None of the cases referred to above had occurred among his cases, and he attributed this largely to his method of preparation. He had abolished purging and preliminary starvation, merely substituting the operation for a meal. He gave a large dose of soluble carbohydrate both immediately before and after the operation. He considered dextrose better than sodium bicarbonate, and instanced two cases where the patients' lives had apparently been saved by the use of the former.

Dr. J. F. W. SILK agreed with Mr. Waugh that the name should be dropped. Post-operative acetonuria depended on a complicated series of conditions. He thanked the members of the staff of the Hospital for Sick Children for their kindness in giving valuable information to the section.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A pathological meeting of this society was held on Feb. 2nd, Mr. W. McAdam Eccles, the President, being in the chair.—After the formal opening business of the meeting the President proposed that a vote of condolence should be sent to Lady Butlin on her recent bereavement. As a society they felt that loss, for Sir Henry Butlin had been for many years a member with them, and they had recently elected him an honorary member.—The President showed a number of specimens of so-called "Dermoid Cysts" of the Ovary, all of them exhibiting the presence of teeth. He discussed their probable origin, whether they were true teratoma, an epithelial inclusion, or a kind of unisexual development. He inclined to the first hypothesis.—Mr. Aslett Baldwin showed a specimen of Teeth from an Ovarian Dermoid in which the number and perfection of the teeth were remarkable.—Mr. Hopewell Smith, in commenting on these specimens, said that microscopic examination of these teeth usually showed that the hard tissues were mal-formed and the dentinal tubes irregular in arrangement.—Mr. Aslett Baldwin showed, amongst other specimens, a radiograph of Fractured Neck of a Femur with screw uniting the bone in position. The case was that of a man, aged 40 years, who fell from a cart. The fracture caused a shortening of two inches. The shortening was reduced by an apparatus which permitted screw traction on the limb, and when perfect length had been secured the steel screw, shown in the radiograph, had been driven through the trochanter into the neck and head of the bone. The whole was secured by a plaster mould.—Mr. Walter E. Fry showed a Decidual Cast from a case of Extra-uterine Gestation. A multipara, aged 26, missed one period. A fortnight later there was sudden violent pain about the left ovary. She was examined under chloroform but nothing abnormal was found. A week later the cast was passed and she recovered. Sections of the cast showed decidual cells of maternal origin but none of fœtal origin. Mr. Fry asked if there was a conception, where was the fœtus?—There was a discussion on this case in which Dr. H. J. F. Simson, the President, and Dr. Julius M. Bernstein took part.—Dr. Bernstein showed a number of specimens of recent cases of fatal visceral disease. Some of these led to valuable discussions. One was a case of Acute Infective Endocarditis in a man aged 40. The patient had been seen by Dr. L. C. T. Dobson, who said that the man's first medical attendant had considered the case one of cerebro-spinal meningitis; ten days later the medical man fell ill with the same symptoms. Dr. R. J. Reece, of the Local Government Board, inclined to the same diagnosis, but examination of fluid obtained by lumbar puncture in both cases proved that both were suffering from pneumococcic infection. The man died and the medical man recovered. Dr. Bernstein considered endocarditis was a late secondary lesion, for there were no heart symptoms pointing to it.—There was shown for Mr. L. A. Bidwell Masses of Soft Fibroma or Fibro-lipoma, which formed a retro-peritoneal tumour; the symptoms pointed to the presence of a hydatid.—The President said that diagnosis of these cases was difficult, and that occasionally the growth

attained a huge size.—Dr. Bernstein showed a film preparation of pure Klebs-Löffler Bacillus taken from a case of Membranous Rhinitis.—Dr. F. G. Crookshank said that these cases were not uncommon, although rarely recognised except by nose specialists. The symptoms and sequelæ were not severe as a rule; he thought that was due to the absence of mixed infection.—Dr. A. C. D. Firth showed a specimen of Ulcerative Endocarditis, due to general pneumococcal infection, in a child aged 3 The examination of hospital reports for nine years only showed the occurrence of one other similar case at this early age.—Dr. Reginald Morton showed skiagrams of cases examined with other physicians. One, with Dr. H. Pritchard, was of a case of Aneurysm of the Arch of the Aorta; the shadow of the aneurysm and the obstructed mass of a bismuth meal in the œsophagus could be seen. Other plates were of a case of Gastroptosis, under the care of Dr. Bernstein. The progress of the bismuth meal in its various stages was shown, and the site of the delay noted.—Dr. Simson showed cases illustrating the difficulties to be met with in the diagnosis of cancer of the uterus. There was a typical cauliflower growth of the cervix in which diagnosis was unmistakable; one of intra-cervical growth of most malignant character, but causing few symptoms; another of a uterus removed in a case of pyometra and grave symptoms simulating carcinoma of the body of the uterus, all of which were due to a fibroid in the posterior wall causing obstruction.—Dr. E. A. Saunders and Mr. Bidwell showed a specimen of Pyloric Ulcer removed by partial gastrectomy with excellent results.—Dr. Alfred Eddowes showed photographs illustrating diseased conditions of the nails: (1) Psoriasis; (2) Overgrowth and Deformity of the Great Toe Nails due to Injury; and (3) a Rare Condition of the Nails of Hands and Feet that had been thought to be Ringworm.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on Feb. 8th, Mr. R. Jones, the President, being in the chair.—Dr. J. Hill Abram read a note on two cases of Œdema of the Orbit. The first case was a man, aged 30, who had swelling in the neck and in the right orbit, a naso-pharyngeal discharge of muco-pus, and just before death a violent epistaxis. A post-mortem examination showed necrosis of the pituitary body, with enlargement and œdema of the lymphatics of the right side of the neck; no growth was found, and the tissues were not further examined. The second case was in a robust man aged 53. His illness began with pain in the right temple, swelling in the right eye, and a rise of temperature. The orbit was incised. At the post-mortem there was exudation at the base of the brain, pus in the cavernous sinuses, thrombosed veins, and an actinomycotic mass in the orbit. Two difficult points to decide were: how the organism gained access to the body, and what was the source of the infection. The mouth, teeth, and the intestinal canal, and even the skin, had been suggested as points of entry. The infection might come from domestic animals or from foreign bodies, such as straw or splinters of wood. As the organism was found in carious teeth it was possible that it led a saprophytic life. Dr. Abram suggested that further investigation was needed to decide whether the organism was anaerobic in man and aerobic in nature. He could find no conclusive evidence of infection from man to man or from cattle to man.—In the discussion that followed Dr. J. Lloyd Roberts mentioned a case of œdema of the orbit with œdema of the rectum, in which an organism similar to the bacillus of diphtheria was found. The patient was given antidiphtheritic serum, with the result that the swelling began to disappear in 15 hours, and in a few days the patient was quite well.—Mr. C. A. Adair Dighton referred to a case of actinomycotic meningitis following excision of the right eye for panophthalmitis after injury. In this case there was no œdema of the orbit.—Dr. C. O. Stallybrass suggested milk as a vehicle of infection, as the disease had been found in the udder and the organism in milk.—Dr. Lloyd Roberts opened a discussion on Colitis from the medical side. He reviewed our knowledge of the subject, and especially referred to Dr. Hale White's investigations, which began about 24 years ago. Dr. Lloyd Roberts commented on the increase in frequency of the disease as well as of appendicitis since then.—Mr. F. T. Paul opened the discussion on the surgical side. He used two operations—appendicostomy for the milder cases and right lumbar colotomy for the more severe. A small incision gave access to the appendix; its base was anchored by fishing-gut sutures, and a narrow rubber tube or pointed catheter was passed into the colon at the first operation. If left to a later stage difficulty might be found owing to the shrinkage which took place in the appendix. Right lumbar colotomy was a difficult operation; opening the peritoneum did not much matter but it was important not to undermine it or injure the duodenum. He did not make as much of a spur in these cases as in other colotomies. He began systematic washing out of the bowel about two weeks after the operation and did not find that antiseptics made much difference.—In the discussion that followed Dr. T. R. Bradshaw claimed for castor oil in small doses an almost specific action in cases of colitis.—Dr. S. M. Whitaker spoke of the treatment by electric enemata, by lactic acid cheese, and by enemata of allantoin.—Mr. R. W. Murray said that in the first wash-out it was important not to use a larger quantity of fluid than half a pint, as large amounts sometimes caused collapse.—Dr. C. J. Macalister spoke of the connexion between colitis and rheumatoid arthritis. Common paraffin had been found useful as it formed a coating in which organisms could not live. He had found simaruba and pomegranate bark useful in these cases.—Dr. C. L. Williams, Mr. G. P. Newbolt, Mr. Colin G. Campbell, Dr. D. Moore Alexander, and Dr. O. T. Williams took part in the discussion.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 2nd, Dr. A. Freeland Fergus, the President, being in the chair.—Lieutenant-Colonel Sir William Leishman, R.A.M.C., delivered an address on Anti-typhoid Inoculation. After reviewing the history of the subject, the speaker referred to various methods of preparing anti-typhoid vaccine, and described that employed in the British Army. The strain of typhoid bacilli used was one the virulence of which had by long culture been greatly diminished. From subcultures of this strain, grown for 36 hours and killed by exposure for an hour to a temperature of 53° C., the present vaccine was prepared. Careful tests were made to ensure the sterility of the vaccine before its issue for use, and no instance had occurred of sepsis attributable to it. Standardisation of the vaccine was effected by counting the number of bacilli present along with a known quantity of normal blood the plasma of which had been replaced by saline solution. The doses usually given were an initial dose of 500,000,000, and, ten days later, a second dose of 1,000,000,000 of dead bacilli. If a single dose only could be given it was one of 1,000,000,000. Experience in England and in India quite dispelled the idea that owing to the development of a negative phase, with increased susceptibility to infection, persons inoculated in presence of an epidemic of enteric fever ran more risk than the non-inoculated of contracting the disease. On the contrary, inoculation proved highly protective. As to the conditions under which anti-typhoid inoculation ought to be carried out as a prophylactic measure, in civil life all persons in attendance on cases of enteric fever and, on the occurrence of enteric fever in any large institution, all the inmates should be inoculated. In the army, even in time of peace, enteric fever was certain to be introduced either by recruits (typhoid carriers or men incubating the disease) or from the surrounding population; and in time of war even the best sanitary organisation was powerless to ensure protection from infection. All recent military experience showed the enormous incidence of invalidity and very high death-rate from this cause. The benefits resulting from anti-typhoid inoculation were strikingly shown by the statistics of enteric fever among British troops in India. For 15 years prior to 1907 the annual number of admissions had averaged 1406, with an average of 353 deaths. In 1905 anti-typhoid inoculation was introduced as a voluntary measure, and while at first not largely utilised, was by 1907 being taken advantage of by the troops in increasing numbers. Since that date the admissions from enteric fever had fallen steadily till in 1910 they numbered only 296, with 45 deaths. Recent experience with a large body of United States troops stationed on the Mexican frontier, among whom anti-typhoid inoculation was compulsory, proved the almost complete protection which this measure afforded the soldiers. Many observers had also found that anti-typhoid inoculation was of value, not only in prophylaxis, but also as a therapeutic agent in cases of enteric fever, and the speaker believed that for this purpose a stock vaccine was more effective than an autogenous one.

Reviews and Notices of Books.

Prehistoric Man. By W. L. H. DUCKWORTH, M.A., M.D. Cantab., Sc.D. Cambridge: The University Press. 1912. Pp. 156. Price 1*s.* net.—This little book is one of the Cambridge Manuals of Science and Literature, issued by the University Press under the general editorship of Dr. Giles, the learned master of Emmanuel College, and Professor Seward, the professor of botany in the University. It displays the arguments to be relied upon in speculation upon the origin of the human race, and in its closing chapter, which takes note of the bearings of recent discoveries, the conclusion is reached that up to a certain point the evidence is strikingly favourable to the hypothesis of evolution, defined as "the gradual development of the modern type of skeleton found in association with a large and active brain capable of manifesting its activity in a great variety of ways." The time factor, as the author points out, is the greatest difficulty as yet which those who want to make definite statements have to face, and he illustrates the risk of forming conclusions on the subject by noting that in 1904 Professor Rutot assigned a duration of 139,000 years to the Pleistocene period, while five years later Dr. Allen Sturge claimed 700,000 years for a portion only of the same period. We recommend this admirable little manual to all our readers, and not only to those who take a practical interest in palæontology, for any medical man may find himself actually in need of practical information on the subject now that excavations, accidental as well as purposeful, are becoming fruitful. Much of the material evidence upon which the theories concerning the human pedigree are based consists of detached skeletal fragments; the more of these that come to light the greater grows the chance of filling up the immense lacunæ in our knowledge of the human pedigree; and no one is so likely as the medical man, usually the only anatomist in the community, to be able to indicate how far any discovery of bones has a genuine historic bearing.

Who's Who in Science (International), 1912. Edited by H. H. STEPHENSON. London: J. and A. Churchill. Pp. 323. Price 6*s.* net.—This book may be described as an endeavour to fill to some extent among English books of reference, for scientific workers and others, the place as a handbook of the international academic world that is occupied in German by the well-known *Minerva*. It contains a tabular list of the world's universities, with the names of their senior professors (only) in the various faculties of the natural sciences, pure and applied, and a biographical directory of all who have academic office. The objective sciences alone are dealt with, the humanities and such borderland branches of knowledge as economics, sociology, psychology, education, and exploration being excluded, though the names of many of the leaders therein appear, inasmuch as their work often overlaps the natural sciences. The list of the world's universities is meagre, only 134 being given. This list does not include a single one of the universities in South America, there are many omissions of universities in the United States, and important European universities also are left out. It is not clear whether the note, stating that "any omissions in this list are due to the university in question not replying to our communication," is intended to cover the absence of all reference whatever to certain universities, or merely to account for certain lacunæ in the information given as to the *personnel* of some of the universities that are included in the list. But even in the latter case we note the omission, in the biographical part, of names which appear in their proper places in the university tables, whose owners have certainly done work that, in our opinion, should entitle them to a place in the biographical part. We welcome the book, however, as an instalment of a work that has long been needed, which we have no doubt will be brought more fully up to date with each succeeding issue.

Some Factors Influencing Health in Tropical and Subtropical Countries. By T. GERALD GARRY, M.D., M.A.O., M.Ch.R.U.I. London: John Bale, Sons, and Danielsson, Limited. 1911. Pp. 96. Price 2*s.* 6*d.* net.—This small handbook should prove of interest to travellers and others about to journey in the tropics or to those already residing in those regions. The work is subdivided into four sections. The first deals with general considerations and bacillary and parasitic diseases, and discusses the type of man and woman suitable or otherwise for residence in tropical countries. The causes of tropical disease and the food and drinks to be used in warm countries are passed in review in the second section. Recommendations with regard to clothing, exercise, and ablution form the more important subject matter of the third section, while the prevention of disease is discussed in the last. The author states that the contents of the handbook have already appeared as a series of articles, and at the request of some friends interested in tropical hygiene he has been induced to publish them in their present form. The work is dedicated, by permission, to Lord Kitchener.

Guide to the Pathological Specimens of the Organs of Generation in the Female, Museum Royal College of Surgeons. By ALBAN H. G. DORAN, F.R.C.S. Eng. Illustrated. London: Taylor and Francis. 1912. Price 6*d.*—This guide has been compiled by Mr. Alban Doran to assist visitors to the Museum who make use of the series illustrating diseases and injuries of the female organs. While the catalogue is mainly devoted to analytical descriptions of individual specimens, the Guide consists of a summary of general pathological conditions, and indicates how they are illustrated by the individual specimens. The Guide is illustrated by some good figures taken from various sources, and it forms an interesting *résumé* of the contents of this portion of the Museum.

Nisbet's Medical Directory, 1912. In two parts. Part I., Directory of Medical Practitioners. Part II., The Local Directory. London: James Nisbet and Co., Limited. Pp. 906. Price 8*s.* 6*d.* net.—Nisbet's Medical Directory this year appears with two marked improvements. In the first place it is printed on better paper and in clearer type, and in the second the Christian names are given in full, instead of by initials only. The importance of this last point only those who have to identify a particular unknown medical man out of a group all bearing the same patronymic and not infrequently the same initials can appreciate. There is much to be said in favour of a purely alphabetical directory also.

Cocoa and Chocolate: Their Chemistry and Manufacture. By R. WHYMPER. London: J. and A. Churchill. 1912. Pp. 327. Price 15*s.* net.—How remarkable has been the growth of the cocoa industry since the cacao bean was introduced into Europe in 1528 by Cortes, the conqueror of Mexico, is made interestingly evident in Mr. Whymper's "Cocoa and Chocolate: Their Chemistry and Manufacture." This is a comprehensive work dealing with every stage in the production of cocoa from the time that the bean is plucked from the cacao tree to the point at which it becomes finished powder—cocoa, as the public know it. Analyses are furnished of the cocoas upon the market, as well as of the changes which the raw material undergoes at various stages of its manufacture, those, for example, which occur during fermentation, drying, and roasting. The story is a very interesting one, and now that cocoa has become an important

and a favourite article of food in the daily diet, besides forming the foundation of a universally appreciated and wholesome sweetmeat, it is desirable that we should possess an authoritative book of reference upon the subject. We should like to have heard from Mr. Whymper something more about the alkalinity of cocoas. He seems to conclude that because the ash of ignited cocoa is alkaline alkali is added. We have found in certain Dutch cocoas no free alkali at all, but the ash was excessive and strongly alkaline. This suggests the addition not of alkali, but of organic salts, which burn into alkaline carbonates.

JOURNALS AND MAGAZINES.

Jahreskurse für Aerztliche Fortbildung. Munich: Lehmann. Price 16 marks per annum.—The November number of this Annual Post-Graduate Medical Course is devoted to a consideration of the diseases of the special senses, eye, nose, and ear. It is, of course, difficult to adapt a general review of medical progress to these subjects. Either so much detail will be given that the general practitioner is bewildered, or so little that the article is useless to the specialist. The authors of the present number have merely selected a few subjects in each specialty, but even with this limitation there are so many things treated of in such a short space that the whole is less useful than other numbers of this most valuable journal.

Professor L. Bach, who writes about sympathetic ophthalmia and squint, holds that the modified ciliary nerve theory of Schmit-Rimpler best explains the former condition. That is to say, it is the reflex result of ciliary nerve stimulation by the exciting eye, and this causes a disturbance of circulation which lays the sympathising eye open to the attack of infective material. In this process, too, anaphylaxis is held to play an important part. Whilst removal of the exciting eye is the only remedy, large doses of salicylates are regarded as having some power to avert the disaster. In speaking of squint, the author gives the teaching now current in most English text-books. Correction of errors of refraction is to be sedulously pursued in the first years of life, and operation resorted to only after the tenth year, when glasses have failed to cure. Advancement operations are more highly commended than tenotomies. In divergent strabismus an operation is usually necessary because nerve factors are much more important than errors of accommodation in its origin. Professor von Eicken writes about diseases of the nose and discusses the recent advances in diagnostic methods, especially in the use of adrenalin preparations to cause shrinkage of the vascular mucous membrane, and the demonstration of the varying conditions of the air cells by means of the X rays. The innumerable modifications of the operation of submucous resection of the septum are regarded as evidence of the inexperience of their authors. Operation is said to be very rarely required in the acute stage of sinus suppuration, and much less often in chronic stages than is generally practised. Professor Werner Kümmel writes about diseases of the outer and middle ears. The relation of otitis to general infections—e.g., pneumonia, meningitis, and diphtheria—is discussed, and it is urged that it is often merely a part and not the cause of such a general infection. He gives a short but most useful account of the various inflammatory conditions of the middle ear and mastoid, with their appropriate treatment.

The December number is devoted to general surgery and to accidents, and it forms, perhaps, the most valuable number of the whole year. Professor Payr writes about the modern position of the surgery of the stomach. And first as regards ulcers. The pathology of gastric ulcer is a subject of great complexity. Many factors are potent in its causation and usually more than one is necessary to bring it about. These may be grouped as follows: 1. Lesions of blood-vessels. Thrombosis caused by local irritation and embolus from some focus of portal infection. Sclerosis of blood-vessels with a proliferation of the intima. An area of vessels may be closed by spasm. The injections of hot salt solutions, formalin, alcohol, and adrenalin solution into the stomach vessels have caused chronic ulcers in animals. 2. Nerve lesions. Division of the vagi causes typical gastric ulcers, which show very varying tendency towards healing. 3. Chemical changes. It is a matter of uncertainty whether these are the cause or the effect of ulceration, but they certainly disappear after the excision of an ulcer. 4. Trauma and bacterial infection are very rare and doubtful causes when acting alone. 5. Toxic agencies. Appendicitis may cause either hæmorrhage from the mucous membrane or actual ulceration. 6. Anæmia. This cannot cause ulcer in the absence of other contributory factors. 7. Predisposing conditions—e.g., asthenia, enteroptosis, dyspepsia, &c. The relationship of chronic ulcer to cancer is regarded as very important. Various authors state that the proportion of cases of cancer that are derived from pre-existing ulcer is anything between 25 and 71 per cent. The locality of the ulcer is often indicated by that of the pain. Right-sided pain is due to an ulcer of the pylorus, left-sided to an ulcer of the lesser curvature, and pain in the back to an ulcer adherent to the pancreas. About 75 per cent. of cases of gastric ulcer cause occult bleeding, which can be discovered only by special examination of the vomit or motions. The delay in emptying the stomach, which is so often seen with gastric ulcer, may be the result of spasm or of stenosis of the pylorus. Examination by the X rays after bismuth feeding reveals the size, shape, and position of the stomach, and also any alteration in contour, the rapidity of emptying, the manner of peristalsis, the presence of adhesions, and the existence of hour-glass constriction; but much experience is required in the interpretation of the X ray findings. Jejunostomy and gastrostomy are of value in certain cases of rupture of gastric ulcers, for the purpose of feeding. In the latter operation a tube is passed right through the pylorus into the duodenum. In the treatment of gastric hæmorrhage atropine is of some value as it paralyses the stomach movements. In the treatment of gastric ulcer, apart from its complications, only the chronic cases require surgical interference, and excision of the ulcer or resection of the part of the gastric wall containing it is held to be superior to gastro-enterostomy.

Professor Borchardt writes about Appendicitis, referring especially to those points still in dispute. The existence of epidemic forms of the disease is regarded as not yet proved, but the prevalence of the disease at certain times and in certain places is very noteworthy. About four-fifths of all persons dying between 60 and 70 are said to show lesions indicative of a past inflammatory condition in the appendix. Figures are given for the comparison of the results of the most conservative and the most active treatment. In the former the mortality is 9 to 12 per cent.; in the latter 6 per cent. Although the second attack is much less dangerous than the first, it is quite unjustifiable to postpone operation in order to wait for an interval or a second attack. Everything points to the advantage of the early operation. It is less dangerous, there is no septic peritonitis and no complications, the wound can be closed, and there is no fear of hernia, whilst the recovery is smooth and rapid. By the early operation is meant one done within 48 hours of the onset. Towards the end of the second day the fate of the peritoneum round the appendix is decided, but it cannot be predicted

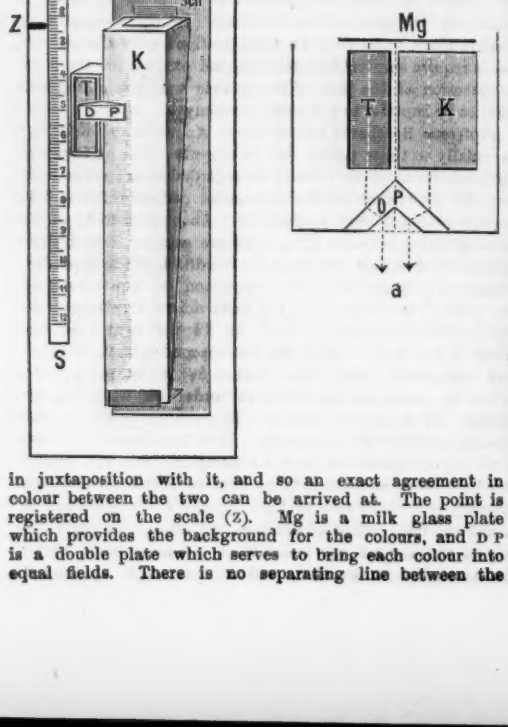
before this time. In seeing the early cases, care is required in the diagnosis from pneumonia, enteric fever, cholelithiasis, and renal calculus. Local tenderness and muscular rigidity are the signs of the greatest importance, and the presence of leucocytosis is often of value. Operation during the intermediate stage of the disease remains the most debateable question. The author holds that it is indicated only when there is distinct evidence that the patient is becoming worse, its disadvantages being the difficulty of finding the appendix, buried in firm adhesions, and of dealing with it adequately, whilst there is great risk of septic embolus and of fæcal fistula. As regards the interval operation, it is held that in the case of those aged from 40 to 45 the liability to a second attack is so slight that they may well wait without operation if they have recovered from a first attack. Late cases with peritonitis should be operated on before the distension indicating intestinal paralysis has occurred. All are now agreed that these cases require rapid and simple procedures, with removal of the appendix and closure of the parietes round the drainage-tube. The author agrees with Rehn, Korte, and Kümmell in using irrigation to flush out the abdomen in general peritonitis. He also advises the raised position of the body with the use of continuous rectal infusion of salt solution.

Professor Thiem writes a short but suggestive article on the relation of cancer and tubercle to injury.

New Inventions.

THE UNIVERSAL COLORIMETER.

WE have had an opportunity of examining this apparatus and we think that it is one of the most compact and ingenious colorimeters we have seen. The standardisation depends upon a hollow glass wedge (K) containing the standard colour, the solution under examination being placed in a trough (T). By means of a screw the wedge can be moved up or down, and that part of it coinciding with the solution under test in the trough brought



in juxtaposition with it, and so an exact agreement in colour between the two can be arrived at. The point is registered on the scale (Z). Mg is a milk glass plate which provides the background for the colours, and D P is a double plate which serves to bring each colour into equal fields. There is no separating line between the two colour surfaces; the trough has parallel walls; the reading is done through a small slit; the wedge remains calibrated once and for all. It is applicable to the determination of hæmatin and iron in the blood, of iodine in the thyroid gland, of creatin, sugar, and indican in the urine, and a number of other reactions dependent upon the production of colour. It has also a wide application in the arts and industries in which colour is a guide to grade or quality. The universal colorimeter was exhibited to us by Messrs. F. Hellige and Co., of Freiburg in Breisgau, but we understand that it may be obtained in this country from the usual dealers in scientific apparatus.

A NEW BLOOD-COUNTING PIPETTE FOR ESTIMATING THE NUMBERS OF LEUCOCYTES AND BLOOD PARASITES PER CUBIC MILLIMETRE.

THIS pipette was devised to facilitate an extensive research on the enumeration of parasites in the blood in cases of malarial fever and sleeping sickness. The pipette is about 5 inches long and is made of glass tubing similar to that used for thermometers, with a white opal background and powerful magnifying surface. The capillary bore, however, is not flattened out like that of a thermometer, but is more nearly circular in cross section. The bore is exceedingly fine and hair-like—such that a portion of the capillary about from 60 to 70 mm. long has a capacity of 1 c.mm. This cubic millimetre length is graduated into equal parts, so that a given fraction of a cubic millimetre of blood can be accurately blown out. A rubber tube with a glass mouthpiece is attached to one end of the pipette, and the other end tapers to a very fine point, which is necessary for expelling accurate small droplets of blood. (See diagram.)

The pipette possesses about the limit of capillary fineness for blood work, because in using a capillary of less diameter it is difficult to expel the blood (which clots quickly in so fine a bore). When this clotting occurs it is troublesome to clear the pipette, as there is no wire fine enough or rigid enough to penetrate it. Even with the bore employed considerable care and practice are required; but in experienced hands the pipette may be used constantly for months without any blockage occurring. In view of the above difficulty, I have devised a similar pipette with a larger bore and graduated to $\frac{1}{4}$ c.mm. This latter can be easily penetrated by a fine wire and cleaned in case of a stoppage. Such a pipette (of the larger bore) may be preferred by beginners, but for quicker work and for those who have had some practice the $\frac{1}{4}$ c.mm. pipette is the better. To enumerate leucocytes or parasites, suck blood into the pipette and expel $\frac{1}{4}$ c.mm. on to a glass slide. Breathe on the slide to keep blood moist, and spread the latter with pricking needle into a small square about 4×4 mm. Stain this small $\frac{1}{4}$ c.mm. blood film in the usual way. To estimate the number of required objects in this film, one must have a mechanical sliding stage and a square diaphragm in the eye-piece. All the leucocytes or parasites in the film may be counted, or the number may be calculated from the numbers found in two or three sample bands taken across the square film.

Fuller instructions for use are supplied with the pipette, which is manufactured by C. Baker, 244, High Holborn, London, W.C.

DAVID THOMSON, M.B., Ch.B. Edin., D.P.H. Camb.
Liverpool.

CHARING CROSS HOSPITAL MEDICAL SOCIETY.—A kinematograph display of bacterial processes will be given in the Out-patient Hall of Charing Cross Hospital on Tuesday, Feb. 27th, at 5 P.M., to which all students and medical men are invited. Members of the profession who desire to be present should communicate with the honorary secretary, Mr. Kenneth V. Smith.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 17, 1912.

Lord Lister.

FULL of years and honours, the greatest Englishman of the nineteenth century has gone to his rest. We claim this position for Lord LISTER, not only by reason of his actual achievements in the preservation of life and in the relief of suffering, but still more by reason of the qualities of intellect and of character which rendered those achievements possible; qualities among which an absolute devotion to the ascertainment of truth was perhaps the most conspicuous. To him, as to the few philosophers of approximately equal rank who have preceded him, an established truth was a possession too inestimable to be measured by ordinary standards of value; and no pains, no self-sacrifice, could be too great to be spent in its attainment. He had the signal advantage, as regards contemporary fame, over the only men who could be mentioned as his intellectual peers, over NEWTON, over THOMAS YOUNG, over DARWIN, that the problems to which he addressed himself were of direct and immediate bearing upon the welfare of the human race, and that his solution of them placed him at once in the forefront of human benefactors. Those problems, and especially the central one among them, the cause of decay and putrefaction in wounds, and the reasons why these changes were more prone to occur when wounded persons were collected together within a limited space, had occupied the minds of many keen observers at many times and in many countries; and WILLIAM CLOWES, the great English surgeon of the sixteenth century, has left behind him not only a description of the conditions which could scarcely be surpassed, but also a lucid statement of the reasons which forbade him to accept the belief that they were due to the use of poisoned bullets or weapons by the Spanish soldiery against whom his countrymen were contending in the Netherlands. In those days the circumstances conducive to widely spread gangrene hardly existed except in time of war, and, save for a few so-called "hospital" cases, it was not until the beneficent action of anæsthetics began to bring great numbers of peaceful people under the hands of the surgeon that there arose a pressing danger of the practical neutralisation of the expected good by the occurrence of great and wholly unexpected evils. Even in private houses, and, as it seemed, amid surroundings of the most favourable kind, the operations which, because they could be rendered painless, were freely and hopefully undertaken, were in a lamentable proportion of cases rendered of no account by death; while the surgical wards of many hospitals became veritable pest-houses, from which escape with life could hardly be regarded as probable. It seems scarcely credible to-day, but is none the less true, that only half a century ago it was gravely proposed that surgical hospitals should be temporary buildings, which should be destroyed by fire, as dangerous nuisances, after the fulfilment of two or three years of existence, or as soon as gangrene became of common occurrence among their inmates.

At this time LISTER, who was the son of a scientific father, and had been trained in a scientific direction by his influence and his example, had already for some years been engaged in careful research, exercising and developing the faculties essential to accurate investigation. He had learnt how to frame and how to verify or to refute hypotheses; he had learnt how to establish facts in such a manner as to render each one a stepping-stone to further progress; he had learnt to question the accuracy of his own conclusions, and this the more stringently, the more they seemed to be conducting him towards some wished-for goal. He was at the zenith of his powers, gazing sadly at the evils of unknown source and origin by which the best skill of the surgeon was so constantly defeated, when the news came to him of PASTEUR'S discovery of the cause of putrefaction, and he hastened to acquaint himself with details which he at once perceived, with the intuition of genius, might supply him with the clue of which he was in search. Each of the two great men has vied with the other in extolling the share taken by his fellow in the production of the total result; and it is manifest that there can be no question of originality between them. It is unlikely, to say the least, that the attention of PASTEUR himself would ever have been directed towards hospital phenomena, and the range and scope of those phenomena were sufficiently wide to furnish complete occupation for many years of strenuous and persevering industry. We have sometimes been reminded, by the history, of what has been recorded by COLERIDGE concerning the origin of penny postage. A pedestrian, wandering in Cumberland in the early "thirties" of the last century, found a poor girl crying in the road because she was unable to pay the postage of a letter from her brother, who had gone south in search of work. The pedestrian paid the postage, and gave the girl her letter. Most tourists, in similar circumstances, would probably have done the same; but this tourist was ROWLAND HILL, and the incident germinated and bore fruit. Most surgeons would have been interested in PASTEUR'S discovery; but the only one who saw its full significance was LISTER, and his life was thenceforward devoted to the realisation of the vision which had been revealed to the insight of his genius, but which never could have been realised without the most patient, continuous, and unwearied industry. The generation is passing away which witnessed the labours of the great discoverer in the direction of perfecting his work; but none of those who now profit by it should forget the opposition which it encountered or the placid courage with which successive positions were either justified and maintained or were abandoned as soon as their originator became convinced of their unnecessary character. Gradually, and step by step, the conditions essential to the asepticity of wounds and injuries were established; and the great philosopher was revealed to the world in the full lustre of his fame.

The picture is worth gazing upon. For the details of

Lord LISTER'S career, the opposition which his discoveries encountered, and the completeness with which this opposition was overcome, we refer our readers to the notice of his life which occupies other portions of our columns. But those who know or who study these details will recognise that even his luminous intellect would have failed to impress itself upon his generation had it not been allied with other qualities only less great, and, unfortunately, not too common. The brilliant imagination, the almost inspired genius, the philosophic insight, would have been of comparatively small account without the support which they derived from unflinching courage and untiring industry. Without these aids, the sneers and contumely with which his earlier announcements were received could scarcely have failed profoundly to discourage him, or even to interrupt the course of his investigations; but he passed through the turmoil as if hardly aware of its existence, and confined himself from first to last to the facts and questions which were of essential bearing upon the truths which it was his mission to establish. Perhaps few things were more galling to his early adversaries than the manner in which he refrained from "railing accusation," and, while never omitting to deal with any real difficulty, treated difficulties which were imaginary or irrelevant with an indifference that must sometimes have been more galling than expressed contempt. Eager to teach and to explain, he was always accessible to those who sought with sincerity for enlightenment, and the stores of his knowledge and of his experience were at the command of the humblest of those who asked for them. It was his privilege to complete the great work which he began, to build up from the foundation a system of asepticism which leaves nothing to be desired by those who have mastered the principles on which it rests, which has opened all the great cavities of the body to the healing hand of the surgeon, which has removed the pains or preserved the lives of countless thousands of sufferers in every portion of the globe, and which has raised English surgery to a pinnacle from which not even the presumptuous ignorance of politicians will be able to take it down. Our country has given to the world and to the profession the record of a stainless life, of an intellect at once brilliant and profound, of an industry which never wearied, of a courage which never failed; and these qualities, sufficient to constitute greatness in any department of human activity, were so combined in LISTER as to justify our opening claim on his behalf. He was unquestionably the greatest Englishman of his century.

The National Insurance Act.

THE inconvenience, indeed, in some circumstances, the terrible mischief, that accompanies our system of party politics has been remarkably shown during the last two or three months in the attitude of the press towards the resolutely expressed intention of the medical profession to obtain fair treatment under the Insurance Act, treatment which should recognise the high as well as onerous nature of our duties and the costly and elaborate training which those who enter the medical profession have to undergo before they are qualified by law to discharge those duties. The Chancellor of the Exchequer, in a measure the good intentions and actual beneficence of which have been freely acknowledged, proposes to deal with the medical profession on lines which no doubt seem to him wise, but without taking into consideration any of the higher associations of our calling, and, most extraordinary omission of all, without consulting either the educational bodies responsible for the maintenance in this country of a supply of properly educated medical man, or the General Medical Council, itself a Standing Committee of the Privy Council, formed to be a guarantee to the public that the medical service of the country should be adequate and duly progressive. Neither our educational nor our disciplinary authorities were asked to assist in the construction of the measure, yet their unwillingness to discuss details at a moment's notice and in oddly assorted company has been stigmatised by Mr. LLOYD GEORGE in violent terms.

If the Government desire the help of the great corporations—as they should—to assist them in the present situation, delay in the working of the Act, it seems to us, must be granted. The medical profession object to having their professional lives turned upside down, and the fact that in certain directions the process might work for their own good has not reconciled the general practitioner to the upheaval. He sees the undoubted ills. Again, the Act contains in it many things ominous to the progress of medical science and to the maintenance of those great charities which are alike the glory of our professional life and the mainstay of our professional education. But the remarkable display of opposition by the medical profession to the National Insurance Act has been attributed mainly to political feeling; and exactly the same is said of those who are willing to work the Act. Whatever reservations the latter make they are said to be influenced by their Liberalism, while those who consider that reasonable delay should be granted before the medical provisions come into working are regarded as enemies to the existing dispensation. This is particularly unfortunate, because an Act to insure the nation against the consequences of invalidity should offer a remarkable opportunity for the medical profession and the public to enter upon relations of mutual trust; under its working they should come to understand each other better. As a matter of fact, owing to the endeavour to hall-mark certain sections of the medical profession as Socialists and certain sections as Tories, all the professional issues have been confused, and a great chance of reasonable coöperation between medicine and the public may have been lost for a generation.

We understand that the Royal College of Physicians of London and the Royal College of Surgeons of England have now constituted a joint committee, in association with which we hope the Society of Apothecaries of London will be found. The committee will consider the situation in regard to their high responsibilities as representing the bodies from which the vast majority of English medical practitioners receive the qualifications under which they

practise, whatever other academic distinctions they may acquire, and as therefore being virtually in charge of medical education in this country. Their course must then be influenced by the result of the meeting of Representatives of the British Medical Association to be held next week. If the Act can be made workable it will call for exceeding great faith from the medical profession, who will have to enter upon engagements of a strict and onerous sort with no definite guarantee of adequate return. That the Insurance Commissioners will be able to make the appointments under the Act desirable ones may be true, and perhaps some system of collective bargaining may enable practitioners to obtain fair play in many localities. But all this is nebulous, and to us it seems that there is nothing but ordinary caution in asking for a term of delay in which many of the difficulties might be cleared up and the uncertainties removed.

Annotations.

"Ne quid nimis."

THE INTERNATIONAL OPIUM CONVENTION.

THE International Opium Convention, which was signed at the Hague on Jan. 23rd by the representatives of twelve Powers, is an instrument designed for the suppression of the abuse of opium, morphine, cocaine, and other drugs which give rise to analogous abuses. The parties to the Convention are Germany, the United States of America, China, France, Great Britain and Ireland, Italy, Japan, the Netherlands, Persia, Portugal, Russia, and Siam; but the Netherlands Government is empowered to invite all the Powers of Europe and America not represented at the International Conference to designate a delegate armed with the full powers necessary for the signing of the Convention. It is important to note that among the Powers which were not represented at the Hague Conference were Turkey, Peru, Bolivia, and Switzerland. The bulk of the raw material from which morphine is extracted is Turkish opium; coca leaves and crude cocaine are chiefly produced in Peru and Bolivia, and Switzerland is growing in importance as a producer of fine chemicals, of which some have the same injurious effects as the alkaloids of opium and coca leaves. Without the coöperation of these Powers, which possess natural or industrial advantages for the production of narcotic drugs, the effective suppression of the illegitimate traffic in opium, morphine, cocaine, and the like would hardly be possible. It is therefore hoped that the four Powers named will be induced to come into line with the twelve signatories. The Convention virtually binds those Powers which ratify it respectively to enact legislation to give effect to the principles embodied in the agreement. As to raw opium, the contracting Powers agree to enact laws to control its production and distribution, to limit the number of ports through which its importation or exportation shall be permitted, and to prevent its exportation to countries which prohibit its entry and control its exportation to countries which limit its importation. As to prepared opium, the Convention aims at the suppression of the manufacture, distribution, and use of opium made into the form of an extract suitable for consumption. Up to this point the desired objects can be obtained, so far as this country is concerned, without any undue interference with existing trade interests, although the right to import raw opium for legitimate manufacturing purposes will be restricted to duly authorised persons. The articles of the Convention relating to medicinal opium, morphine, cocaine, and heroin bind the ratifying Powers to enact laws which must necessarily infringe on an industry which is in a particularly flourishing condition in Germany, England, Scotland, and Switzerland. A considerable proportion of the output of the narcotic alkaloids manufactured in these countries supplies a demand which is neither medical nor legitimate, in spite of the fact that the manufacturers may be ignorant of the ultimate destination of their products. Large quantities of morphine, for instance, are smuggled into China, and it is known that in the year when the duty on that alkaloid imported into the Celestial Empire was increased from 5 to 200 per cent., *ad valorem*, the quantity imported fell from four tons to a few ounces, although, it is said, the consumption increased. Similarly, the occasional seizures of heavy consignments of cocaine by the Indian Customs authorities indicate the existence of a not inconsiderable illicit traffic in that drug in India alone. When the sale of morphine and cocaine is restricted to proper uses only there will necessarily be a large decrease in the quantities manufactured. The Convention requires the contracting Powers to enact such pharmacy laws and regulations "to limit the manufacture, sale, and use of morphine, cocaine, and their respective salts to medical and legitimate uses only" in the following manner—by issuing licences to manufacturers of, and dealers in, these products in respect of their places of business, and by requiring them to register on their books the quantities manufactured, imported, exported, or sold. Such regulations are also to apply to medicinal opium; to all preparations (official and non-official, including the so-called anti-opium remedies) containing more than 0·2 per cent. of morphine or more than 0·1 per cent. of cocaine; to heroin, its salts and preparations containing more than 0·1 per cent. of heroin; and to every new derivative of morphine, cocaine, or their respective salts, or to any other alkaloid of opium which might, after generally recognised scientific investigations, give rise to similar abuse and to result in similar injurious effects. In framing the proposed measures of legislation the contracting Powers are not required to apply the regulation in regard to the recording of sales of morphine and cocaine in the case of prescriptions of medical practitioners, or in the case of sales by pharmacists in the ordinary course of business. As a matter of fact, the law of this and most of the other countries concerned already makes provision for transactions of this kind, but apart from the obligations of Great Britain, as a party to the Convention, it would be in keeping with the spirit of the proposals if the British Government, in framing the measure which will be necessary to give effect to the international agreement, were to take the opportunity to increase the stringency of the conditions under which the drugs in question may be distributed. If some legal limit were placed on the number of times a prescription for a compound containing morphine or cocaine could be dispensed, pharmacists would be happily relieved of the necessity of depending entirely upon their own judgment. The last day of this year is the date by which it is hoped that the Government of the Netherlands will have received ratifications from the Powers, after which it is expected that the necessary measures of legislation will be framed without much delay.

IN MEMORY OF THE LATE DR. BOURNEVILLE.

A COMMITTEE has been formed, under the immediate presidency of M. Pierrotet, Mayor of the Fifth Arrondissement of Paris, with M. Mesnard, of the Asile de Bicêtre, as secretary, for the purpose of honouring the memory of the late Dr. Bourneville, the founder and editor of the *Progrès Médical*. It is proposed to raise a monument over his grave at the Père Lachaise cemetery, and another at the Bicêtre

Hospital with which he was connected for so many years. In this manner the great services he rendered may be recalled and serve as an example to others. Dr. Bourneville will be best known to our readers, perhaps, for his intimate association with the earliest movements to introduce the technical training of hospital nurses. He was inspired by a profound admiration for Miss Florence Nightingale and anxious that his country should benefit by her teaching. As a Member of Parliament as well as of the Paris Municipal Council, he largely contributed to the secularisation of the French hospitals, and the consequent introduction of competent trained nurses. He likewise helped forward various movements in favour of special maternity hospitals. As further examples of his deep interest in social problems may be mentioned his advocacy of cremation and of more systematic medical and institutional treatment of the feeble-minded, while as a member of the Superior Council of Hygiene he worked for sanitary reform by promoting the water-carriage system of sewage. He assisted Professor Charcot to edit the *Archives of Neurology*. The secretary of the Society for the Support of Cremation, M. G. Salomon, 112 bis, Boulevard Malesherbes, Paris, is the treasurer of the memorial committee. Among the members of this committee we notice the names of Dr. Augagneur, who is one of the Ministers in the newly formed Government under M. Poincaré; Dr. Marcel Baudoin, Syndic of the Association of the French Medical Press; Dr. Paul Brousse, recently president of the Paris Municipal Council; Dr. Beurmann, president of the Hospital Society; Dr. Maurice Letulle, president of the Anatomical Society; Dr. Paul Sérieux, president of the Medico-Psychological Society; Dr. Thoinot, president of the Society of Hygiene; Dr. Demelin, Dr. Navarre, Dr. Jules Voisin, and Dr. Landouzy, dean of the Paris Faculty of Medicine. M. Léon Bourgeois, who was formerly Prime Minister, is associated on the committee with two other celebrated Prime Ministers, M. Clemenceau and M. Combes, and with M. Mesureur, director of the Assistance Publique. The executive also includes Professor Barrier, director of the Veterinary School at Alfort, and Dr. Bonnaire, the well-known obstetrician, and the general secretaries are Dr. Paul Cornet, Dr. Julien Noir, and M. Pujol, the architect. Considering the great esteem in which the late Dr. Bourneville was held and the influential support thus accorded to the movement, there should be no difficulty in suitably commemorating his life work.

THE HOUSING QUESTION IN VANCOUVER.

A FREQUENT correspondent writes from Vancouver the following description of how the question of overcrowding is affecting the accommodation of the labouring classes in Vancouver:—"Public health problems are to the fore everywhere, and overcrowding amongst labourers is a serious concern in the city of Vancouver. It has been extending at a great rate, but the population has more than overtaken the accommodation, particularly as railway extensions have cleared away large blocks of huts, or, as they are termed in Western Canada, 'shacks,' which formerly sheltered a myriad of the poorest people. I have been taken through many houses which take the place of common lodging-houses, and other lodgings. The lowest price for a bed in a dormitory is 20 cents. I should estimate that each lodger has twice the cubic space he would get for 3*d.* in an English common lodging-house, he has a better bed and bedding, his room is better ventilated, and he has a water-closet and washing-place on the same floor. Probably at night extra men will be found sleeping on the floor, or on mattresses laid on the floor, and it is practically impossible at present to prevent this, for there is not in the town accommodation for housing the winter population. It is hoped that next year the demand may be overtaken, but the conditions are almost too difficult to be met. Throughout Central North America there is great need for labour during the summer, when the prairies are consequently drawing men to them. These men have no work to do in the winter and, dreading the severity of the climate, they migrate to the Pacific Slope; consequently the towns from Vancouver to Los Angeles have to house in winter an enormously increased population, a population of white men be it observed. The Chinese have different conditions, for the Chinese on the prairies are cooks or laundrymen, and their occupation is permanent. The extra Chinese in the towns in winter are men who work in the salmon canneries on the Pacific Slope. Many 20 cent beds have been provided on a semi-charitable basis—like that of the Rowton Houses in London and the Bevington House in Liverpool—in the Mission building, so far partly completed and lodging 250 men, where there are a mission room, large dormitories, good lavatories, a laundry, and a baggage room. Here the city accommodates some men of good character but without funds at the time. Above the 20 cent line are houses with better beds and choicer company for 25 cents in large dormitories and 50 cents (2*s.*) in cubicles, and lodgings at 50 cents (2*s.*) and 75 cents (3*s.*) a night in separate rooms. These are all carefully inspected by the Health Department; their sanitary arrangements and ventilation are very good, and fire protection is provided by swing doors and fire escapes. The problem of housing the Chinese is more difficult, but it is hoped that this will soon be solved by the development of a Chinese settlement now under construction to replace the old village which was swept away in the preparations for the new railway." The difficulties which confront a new community, when growing so rapidly as the modern Canadian towns grow, must be enormous. Though the sanitary conditions of the day are faced and provided for, the pressure is maintained by the influx of population. Larger sewers and an increased water-supply are needed almost before the ones immediately required are completed, and in spite of an anxious and wakeful Government overcrowding has come into existence in many places, and must continue to be steadily faced.

BLUE ATROPHY OF THE SKIN FOLLOWING COCAINE INJECTIONS.

Dr. William S. Gotthell, of New York, has contributed to the *Journal of Cutaneous Diseases* for January, 1912, a description of changes in the skin following habitual hypodermic injections of cocaine and morphine in a woman aged 31, an ill-nourished subject, who had been administering the drugs to herself for about seven years. The actual cause of her going to Dr. Gotthell for treatment was a multiple infection of the thighs, buttocks, and arms with pyogenic cocci, introduced in all probability by a dirty hypodermic needle; this infection was of three weeks' duration only, and she had never had a previous misadventure of the same kind. There were, however, a great many atrophic pigmented areas of skin scattered about over the thighs, buttocks, and arms. These were more or less rounded in shape, and were on an average equal in size to a large pea; each was a sharply limited depression in the skin, and had a blue tint varying in intensity from a deep blue-black to brighter shades, causing them to contrast vividly with the anæmic pallor of the surrounding skin. The patient was quite sure that each of these patches represented the site of an injection of cocaine; she was positive that introduction of morphine alone beneath the skin had no such effect. The development of these areas caused her no concern, so that presumably there was no inflammatory process responsible for their production. She bought her drugs in clear solution and used the ordinary type of hypodermic needle. A histological examination of

the areas showed that the pigment, which was very black, occurred in rounded or irregular granules, massed together in some spots. It was scattered throughout the cutis, but lay principally in its central portion; some of it was definitely within lymphatics, and in many places the granules were surrounded by an inflammatory exudation of cells. The atrophic process involved the entire cutis. Unfortunately the quantity of pigment was so small that it could not be tested chemically. Dr. Gottheil states that he has never seen any such lesions following subcutaneous injection of drugs, though spots of blue pigmentation without atrophy are not uncommon as a result of hypodermic introduction of various drugs. There are only two other cases on record, so far as he was able to ascertain, in which the same combination of pigmentation with atrophy has occurred as a result of injection of drugs; in one of these the offending substance was morphine, in the other cocaine. Dr. Gottheil's patient said that she had seen similar spots in other victims of cocainism. The nature of the pigmentation is doubtful; possibly the granules are steel particles, but this fails to explain the rarity of the lesion and the concomitant atrophy.

THE LOGIC OF FADDISM.

THAT some people eat too little and that others eat too much; that most people occasionally, and some habitually, eat unsuitable food, or eat suitable food in an improper manner or under improper circumstances; that food that is suitable for one person may be quite unsuitable for another person, or even for the same person at another time and under other conditions; and that from these deviations from normal conduct arise many of the ills that flesh is heir to—these, surely, are truisms. And from concentration of attention on truisms without due regard to perspective most fads take their birth. Mr. Upton Sinclair, who focussed public attention with regard to the Chicago stock-yards in the direction previously indicated in these columns by our Special Sanitary Commissioner, has views on fasting[1] as a cure for nearly every ill, and his opinions have received wide publication in lay magazines and in the daily press. They have lately appeared in book form. Suffice it to say that he advocates in many circumstances abstinence from food of all kinds for a period lasting until the return of hunger—which, according to him, within a day or two of beginning the fast, disappears and remains in abeyance for a varying period of time. In response to a circular of inquiry sent out by Mr. Sinclair as to the results in those known to have followed his method, he received reports of benefit in 27 cases of indigestion, 14 of constipation, and in smaller numbers of colds, tuberculosis, poor circulation, headaches, anæmia, scrofula, bronchial trouble, syphilis, liver trouble, general debility, chills and fever, blood poisoning, ulcerated leg, neurasthenia, locomotor ataxia, sciatica, asthma, excess of uric acid, epilepsy, pleurisy, impaction of bowels, eczema, catarrh, appendicitis, valvular disease of heart, insomnia, gas poisoning, grippe, and cancer. We are by this time quite prepared for the familiar phrase that follows: "45 of the cases having been diagnosed by physicians." We have some curiosity to know how it happened that "out of the 109 persons who wrote" [in reply to Mr. Sinclair's questions] "100 reported benefit and 17 no benefit" (p. 103), and suggest that statements of this kind, even if capable of some explanation not clear to the ordinary reader, may have led to the neglect by responsible journals to take his work seriously—a conspiracy of silence in which Mr. Upton accuses THE LANCET and the *New York Times* to participate. Mr. Sinclair, believing the meat which he had hitherto been taking to have been the cause of his headaches, dyspeptic and other symptoms, gave up eating meat. The troubles disappeared and he became forthwith a vegetarian on principle as well as in practice. But, alas! in about three years the same troubles reappeared, notwithstanding his strict adherence to a "raw food dietary." Then he read somebody's book, with the result that he returned to the use of meat, and presto! his troubles disappeared again. He has apparently since stuck to the use of meat, which he found suited him better than vegetarian food—though the same indispositions the cure of which he now attributes to meat food had previously disappeared on his taking to vegetarianism; and he expresses the opinion that, so far as he is concerned, beef-steak is the most easily digested and most easily assimilated of foods (p. 168). The fact is, that in a lack of general applicability lie the uselessness and danger of all faddist methods, while Mr. Sinclair errs beyond that point, in that he lays down as principles things that are clearly unsound. For instance, he asserts: "That anyone could die of lack of food without feeling a desire for food, is absurd on the face of it." Again, discussing alleged deaths under the fasting cure, he says that "people might die very frequently" [under the treatment] "without that being any argument against the cure." That would depend upon whether the relation of cause and effect were established. He and thinkers of his calibre fail to see that the converse proposition is equally true—viz., that people may get better under any kind of "cure" without that being any argument for the cure. The multiplication by the food faddist of plans to avoid dyspepsia is for the most part an imitation of the policy of the householder who, hearing of a patent stove that was warranted to save half his coal, bought two stoves that he might save all of it.

[1] The Fasting Cure. By Upton Sinclair, author of the "The Jungle," &c. London: William Heinemann. 1911. Pp. 261. Price 25s. 6d. net.

MALIGNANT CHORDOMA, INVOLVING BRAIN AND SPINAL CORD.

IN the *Journal of Nervous and Mental Disease* for January of this year is a paper of considerable pathological interest by Dr. Smith Ely Jelliffe and Dr. John H. Larkin, of New York. It records the occurrence of a tumour of great rarity—viz., chordoma, a malignant cartilaginous growth of notochordal origin, invading the base of the skull and brain, with multiple metastases in the spinal cord and column. The present case is the seventh recorded in the literature. The patient was a young married woman of 36, with a clean bill of health up to the onset of the illness to be described, who suddenly developed a sixth nerve palsy on the left side. Severe headache followed, with neuralgic pains in the distribution of the left trigeminal nerve, extending sometimes to the back of the head. Not long after, persistent vomiting set in and the patient began to lose flesh rapidly. Some months after the commencement of the affection it was found that the right eye was completely blind, while vision was very defective in the left. The pupils were widely dilated and inactive to every form of stimulus. There was total external ophthalmoplegia as well, the eyes being immobile in the central position. On the left side considerable ptosis was noticed. Facial movements were good, and audition was normal. The limbs were somewhat wasted and muscular power was diminished, but no sensory changes could be detected. Both ankle- and knee-jerks were absent, and there was a slight degree of Rombergism. Within a comparatively short time, however, the symptoms became much more severe. Gradually increasing somnolence set in, with mental confusion and dreamy delirium; further cranial nerve involvement, in the shape of a left facial palsy, indicated a spread of the basal tumour, the condition having been so diagnosed. Then followed a motor and sensory palsy of the left fifth nerve, a left hemiplegia and hemianæsthesia, and a progressive

paraplegia, with total loss of motor, sensory, and sphincter functions. Hallucinations of sight, hearing, and smell ensued. Finally, came a sanguineous discharge from the right nostril, and after eight months of acute suffering the patient died from profound inanition. At the necropsy the brain was found to be held down in the base of the skull by a huge tumour mass, through which ran the first, second, third, fourth, fifth, and sixth cranial nerves, while others were flattened or distorted by intracranial pressure. The dimensions of the growth were 11 × 6 × 7 cm. The base of the skull was extensively necrosed by tumour invasion. Both orbital plates of the frontal bone, the crista galli and cribriform plate of the ethmoid, the body and lesser wing of the sphenoid, were all destroyed. The pituitary body could not be found. Tumour growth had spread into the nares, the sphenoidal sinuses, and even into the antrum of Highmore. At first the growth was supposed to be a sarcoma, but microscopical examination showed that the matrix of the tumour was like cartilage in some places and like mucous tissue in others. There were rows of cells in a homogeneous groundwork which contained many open spheroidal spaces, due no doubt to the coalescence of cells. The spaces were sometimes sufficiently extensive to be described as cysts. The cells were relatively large, with deeply staining nucleus and many vacuoles in the protoplasm. The matrix was in many places hyaline-looking, staining light blue with hæmatoxylin. Very few blood-vessels were found in the tumour, which in its more developed parts was identical with the tissue of the notochord. The paper of Dr. Jelliffe and Dr. Larkin contains an abstract of all the previously recorded cases.

DUTCH DROPS.

A CORRESPONDENT has forwarded us a sample of "a quaint remedy for urinary disorders called 'Dutch drops,'" which appears to have vogue chiefly amongst seafaring people, its efficacy as a diuretic amounting in their minds to a conviction. "Dutch drops" are referred to in certain homely books on medicine as a residuum obtained by the rectification of turpentine or by distilling resin, but it is admitted that the original Haarlem formula is much imitated. Various formulæ are given, including the compounding of oil of turpentine, guaiacum, amber oil and cloves, balsam of sulphur, linseed oil, ammonia, and so forth. It is stated to be "detergent, diuretic, stimulant, and vulnerary." Amongst the synonyms of Dutch drops are: guttæ Hollandicæ, empyreumaticum Batavicum, ol. Haarlemensis, and Tilly's drops. The sample submitted to us appears to be the genuine Haarlem oil, which, according to its wrapper was invented as far back as 1696 by one Tilly. "This medicine," we are told, "works miracles with every one, that makes use of it, and the Grace of the Omnipotent God is experienced in it to admiration. When you take this remedy it unites itself to the Stomach, and is the same as a flying Mercury not letting the vapours rise without being mixed with them; it likewise prevents at moist humours from running through the Veins or Nerves, accompanying them until they pass through the pores. Thus it communicates itself and leaves its virtue notwithstanding afterwards it may be expelled by urine or stool." In similarly quaint terms the wrapper also declares this "medicamentum gratia probatum" to be a cure for bad-smelling urine, gravelly stone, all kinds of fevers and distempers, French disease, worms, palpitations, megrim, ulcers, cancers, disorders of the eyes and ears, colic, lying-in inconveniences, fits, and so on. The sample we received was a dark brown oil smelling strongly of turpentine. It did not contain guaiacum or ammonia. There was sulphur present in combination with the oil, for on oxidising the oil with nitric acid some sulphuric acid was produced. Further, on heating the oil with alkali and a few drops of lead acetate solution there was a distinct blackening. A slip of lead foil similarly turned sheeny black when heated in the oil made alkaline with caustic soda. The oil was completely soluble in ether. That it did not consist exclusively of turpentine and its derivatives was evident from the fact that a soap was formed when it was boiled with an alcoholic solution of caustic soda. The soap so obtained when decomposed with a mineral acid yielded fatty acids resembling linoleic acids. It seems probable, therefore, that the specimen was a true specimen of the original Dutch drops made by boiling sulphur with linseed oil or turpentine or both. The medicament clearly aims at presenting sulphur in organic combination, and preferably an oily one, resembling in this respect relatively modern pharmacological products as the ichthyols. Such attempts at presenting sulphur in the organic shape with the aid of fats and volatile oils, are interesting in view of the therapeutic success attending the use of, say, arsenic and mercury in complex organic molecules.

IMPROVEMENT IN SPONDYLITIS DEFORMANS UNDER FIBROLYSIN.

AT a meeting of the Société Médicale des Hôpitaux of Paris on Dec. 1st, 1911, M. E. Rist described a case of remarkable improvement in spondylitis deformans, with involvement of the shoulder and hip-joints (*spondylose rhizomélique*), under treatment by fibrolysin. Some years previously he reported a similar result in which after an attack of gonorrhœa the spine had been ankylosed for 14 years. The patient became an invalid unable to do any work. Under the treatment he so much improved that he could almost gain a living. In the present case the patient was a Polish hatter, aged 23 years. He was admitted into the Laennec Hospital for cough, dyspnœa, and pains in the limbs on June 24th, 1911. In January and again in March hæmoptysis occurred. In May rheumatic pains began in the lower limbs and then affected the upper. On admission he was emaciated, weighing 47½ kilogrammes. The temperature ranged from 99·5° to 100·4° F., and the respirations were 28. At the apices of the lung the respiratory murmur was weak, and in the right supraspinous fossa dry crackling sounds were heard. He coughed frequently, but expectorated little. The most striking symptom was rigidity of the neck with limitation of movements. Flexion was almost impossible and extension was only a little more free. Limitation of rotation and lateral flexion was equally marked. All these movements were painful. On endeavouring to increase them passively invincible resistance was encountered and acute pain was produced. The whole of the cervical and dorsal spine was painful and ankylosed. There was marked cervico-dorsal kyphosis, contrasting with lumbar lordosis. The left shoulder-joint was painful, and its movements were limited and accompanied by crackling; the left hand could not be placed on the head. The right shoulder was less painful, and its movements were not limited. There were also pains in the hip-joints, but they had been more severe before admission. The obliquity of the ribs was marked and respiration was entirely diaphragmatic. The case was thus a typical example of the *spondylose rhizomélique* of Marie. So was its etiology. A year before admission the patient contracted gonorrhœa and a "morning drop" (*goutte matinale*) still persisted, in which gonococci were found. The urethritis was treated by M. Legueu, and at the time of the report had disappeared. For the vertebral ankylosis M. Rist gave from July 22nd to Nov. 3rd 24 subcutaneous injections of 2 cubic centimetres of a solution containing 20 centigrammes of fibrolysin to the cubic centimetre. On July 28th, after 1·2 gramme

of fibrolysin had been injected, movements of the head and shoulders were easier and more extensive. At the end of October the movements were almost normal. Nevertheless, some rigidity of the spine persisted, and the kyphosis and lordosis were still perceptible. Movements of the left shoulder-joint did not become quite normal. The upper ribs did not regain all their mobility, and the diaphragmatic type of respiration persisted. The pains completely disappeared, the patient gained 5 kilogrammes in weight, and resumed work. M. Rist does not doubt that if he had been able to combine gymnastics and massage with the administration of fibrolysin he would have obtained a still better result. The success of fibrolysin in such cases is not in accord with the pathological theory that spondylitis is primarily due to softening of the bones (rarefying osteopathy), and that ossification of ligaments follows as a compensation for the insufficient solidity of the skeleton. M. Rist suggests that there is at first hyperplasia of the peri-articular fibrous tissues, as otherwise it is impossible to explain the action of fibrolysin. It is noteworthy that the spondylitis had not lasted more than two months when the treatment was begun. With regard to the pulmonary tuberculosis, it at first seemed more serious than it was, because some of the symptoms which were supposed to be due to it were the result of immobility of the thorax from costo-vertebral arthritis. Expansion of the apices of the lung was therefore almost completely suppressed, the respiratory murmur was diminished, and dyspnœa was increased. It is also noteworthy that the fibrolysin had no injurious effect on the pulmonary tuberculosis. The view has been put forward that the drug would interfere with cicatrisation of tuberculous lesions.

THE EFFECTS OF STRENUOUS ATHLETICS IN THE AMERICAN NAVY.

IN the *Journal of the American Medical Association* of Jan. 6th is reviewed an important pronouncement contained in the report of the Surgeon-General of the American navy on the effects of competitive athletics in the training schools and colleges. With an unparalleled opportunity for observing during their school course and in their subsequent careers large classes of young men, the Bureau of Medicne and Surgery of the Amercan Navy has come to the conclusion that spectacular and competitive athletics are undesirable. It is held that the prolonged and rigorous course of exercises necessary to excel in physical sports is injurious in its after-effects. Under the conditions of service at sea it is impossible to continue rigorous exercises; the athlete falls a prey to degenerative changes, tends to become obese and to lose physical stamina, and fails to render as many years of efficient service as does his less athletic classmate. The records of 625 athletes of the Naval Academy classes from 1891 to 1911 were examined to determine the bearing of early athletics on physical efficiency in after life. Of these, 21 died—6 from tuberculosis, 8 from mental and nervous disease, 2 from alcoholism indirectly, 1 from acute dilatation of the heart, and 1 from valvular disease of the heart. The last two deaths were directly attributed to running. One death was due to an injury received during football. Of the remaining 604 athletes in the service, 198 have had disabilities noticed in the official records to which athletics stand in a possible or probable causal relation. These disabilities have not necessitated discharge, but have caused impaired service. Of these 198 men, 48 had abnormal conditions referable to the heart and blood-vessels, such as arterio-sclerosis, organic cardiac disease, murmurs, irregular and rapid cardiac action and hypertrophy, and dilatation of the heart. In 16 the joints or motor apparatus were involved; in 11 the kidneys; in 17 there was patent tuberculosis or tuberculosis was suspected; in 16 there was neurasthenia associated with gastric complications. There were 25 cases of appendicitis and 15 of hernia, both of which conditions appeared to be associated particularly with a football record. The opinion is expressed that long distance racing is productive of serious harm. This severe arraignment of competitive athletics has been corroborated in civil life by experiences in schools and universities. The Bureau of Medicine and Surgery of the American Navy does not recommend that athletics in the navy should be entirely abandoned, but is of opinion that in their strenuous competitive form they are dangerous. Moderate athletics are encouraged, and in the Naval Academy the Swedish system of exercises is now being tried with satisfactory results.

ADMINISTRATION OF THE PHARMACY ACTS.

DURING the last few years the duty of administering the penal clauses of the Pharmacy Acts, which belongs to the Pharmaceutical Society, has entailed a much greater amount of work than was the case before the enforcement of the Poisons and Pharmacy Act, 1908, by which enactment a new class of poison sellers—namely, a class licensed to sell arsenical sheep dips, weed-killers, and the like—was created. In the year before that Act came into force the society's law department investigated 453 cases of alleged infringement of the Acts, but in the year following the enforcement of the 1908 Act four times the number of cases of alleged infringement were examined. The main cause of this increased activity was that the new class of licensed poison sellers, which consisted chiefly of seedsmen, florists, and ironmongers, had not been trained to understand the necessity of a precise observance of the precautions which the law requires to be taken when potent compounds are sold by retail. In chemists' shops the "poison book" has been used every day for the last 40 years or so, but an ironmonger had not been accustomed to take any precautionary measures of the kind when dealing with his customers, for the reason that it had been illegal for him to sell compounds of arsenic and nicotine. When the ironmonger obtained his poison licence he was apt to forget the conditions of sale with which he was required to comply, and hence the large increase in the number of cases of irregular sales of poisons which the Pharmaceutical Society was called upon to investigate. That the unqualified poison sellers are now acting with greater care seems to be indicated by the fact that last year the number of cases of alleged infringement of the Pharmacy Acts which were made the subject of inquiry was considerably less than in the previous year. Thus, according to the annual report of the registrar of the Pharmaceutical Society, which was presented at the February meeting of the council, the number of cases investigated in 1911 was 1244, against 1836 in 1910. The number of cases in which legal proceedings were instituted last year was 241, and, with few exceptions, penalties were paid by those against whom the proceedings were taken. In the majority of cases the offences were those of the sale of medicinal poisons, or the keeping of open shops for the sale of poisons by unqualified persons. In only 21 instances were proceedings taken against seedsmen or their assistants in 1911, whereas in the previous year 64 seedsmen and 39 assistants to seedsmen were proceeded against, which goes to show that licensed poison sellers are becoming acquainted with their obligations. In administering the Acts it is sometimes brought to the notice of the registrar that unqualified drug store keepers, in order to evade the Pharmacy Acts, sell preparations which should contain poisons from which the poison has been omitted. Last year

11 such cases were reported, and in two instances the sellers were summoned for infringement of the Merchandise Marks Act and fined. One of the defendants sold a preparation labelled "Laudanum—Poison," which contained no opium, an incident which shows the extremes to which an unqualified person will sometimes go in order to escape the penalty of infringing the Pharmacy Acts. The registrar's report also shows that the number of registered pharmacists in Great Britain is now 16,365, an increase of 73 on the preceding year. The membership of the society, which numbers nearly 7500, has never before been so large.

THE INTERNATIONAL OBSTETRICAL AND GYNÆCOLOGICAL CONGRESS.

A NATIONAL Organisation Committee for Great Britain and Ireland has been formed in connexion with the International Obstetrical and Gynæcological Congress, which is to be held in Berlin from Sept. 10th to 12th, 1912. The committee includes representatives from the Royal Society of Medicine (Obstetric and Gynæcological Section), North of England Obstetrical and Gynæcological Society, Edinburgh Obstetrical Society, Glasgow Obstetrical and Gynæcological Society, and the Royal Academy of Medicine in Ireland. The Central Organisation Committee in Berlin has decided to hold a formal discussion at the first session of the Congress on Sept. 10th, on the Surgical Treatment of the Peritoneum. The duties of the National Organisation Committee of Great Britain and Ireland are (1) to nominate delegates to the Congress for the United Kingdom, the number of official delegates being expressly limited by the Central Organisation Committee to three; and (2) to select a "*Rapporteur*" (not necessarily one of the three delegates) who will personally open the discussion on the Surgical Treatment of the Peritoneum as this country's representative and give the views held here on the subject. The secretaries of the National Organisation Committee are Mr. J. H. Targett, 19, Upper Wimpole-street, London, W.; and Dr. Walter W. Tate, 32, Queen Anne-street, London, W.

THE INCIDENCE OF CANCER IN FINLAND.

THE Cancer Commission which the Finnish Medical Society appointed to inquire into the incidence of cancer, including sarcoma, in Finland has now published a report[1] based on the answers received from 313 practitioners to the commission's queries as to the number and nature of cases under observation between Jan. 1st and March 31st, 1910. The inquiries were conducted on the same principle as in Sweden and Denmark, where similar investigations were held in the years 1905 to 1906, and 1908 respectively. The Finnish report shows that in several points there is a real or apparent difference in the incidence of cancer in the three countries. The value of the report is inevitably diminished by the diagnosis of cancer being in many cases uncertain, but it was confirmed by an operation or microscopic examination with sufficient frequency to illustrate the distribution of cancer in different parts of the country, and its relative frequency in different organs. In the towns the incidence of malignant disease for every 100,000 inhabitants was 28·38. In the country districts it was 16·37. This disparity is largely accounted for by the greater facility afforded the town dweller for medical attendance. The same explanation is probably also applicable to the difference between the total incidence of the disease in Finland, Sweden, and Denmark per 100,000, the figures being 18·14, 33·1, and 42·8 respectively, for the population is more dense and the patient is in closer contact with the physician in the latter countries. The frequency of the disease in men steadily increased with age till its maximum was reached at the age of 60. In women it increased till the age of 45 to 50; between the age of 50 and 55 it sank, and rose again to its maximum at the age of 55 to 60. Cancer of the lip represented 24·49 per cent. of the total in the male, while in the female it was only 3·21 per cent. Cancer of the stomach was more evenly distributed between the sexes, being 41·23 per cent. in the male and 37·18 per cent. in the female, in whom the frequency of cancer in the breast and uterus was 19·23 and 17·95 per cent. respectively. Altogether there were 244 cases of cancer and sarcoma in the male, and in the female 312, of which 116 involved the breast or uterus. No conclusive observations as to heredity, infection, local conditions, trauma, the influence of other diseases and of operations are made, nor is any new light thrown on the relation between cancer and various occupations; but the curious fact was noted that cancer was relatively less frequent in the upper than in the lower class of society, although the facilities for detecting the disease are presumably greater in the former than in the latter class.

[1] Finska Laekaresaellskapets Handlingar, November, 1911.

PRESERVATIVE TRICKS.

THE wily attempts of some persons to escape the vigilance of those responsible for the efficient administration of our food laws are well illustrated in a report recently published by the Local Government Board upon the analyses and methods of detection of certain proprietary substances sold as preservatives. Dr. G. W. Monier-Williams has found, for example, that a new preservative, sold under the name of "mystin," for preserving milk and cream has recently been advertised as possessing the advantage that its presence cannot be detected by analysis. A sample of mystin on analysis proved to contain sodium nitrite 9·85 per cent., formaldehyde 0·30 per cent., and water 89·85 per cent. As Dr. Monier-Williams points out, sodium nitrite is a dangerous drug with a powerful action on the heart. According to the directions given the addition of this compound to milk would mean that a quart of it would contain two grains of the nitrite, which is the maximum dose of this substance. Further examination of the milk so preserved brought the fact to light that the milk did not respond to the test most generally relied upon by analysts for the detection of formaldehyde in milk, so that in the ordinary routine examination of milk samples for preservatives such a sample might be passed as genuine. Moreover, the presence of nitrite of sodium in milk has not hitherto been suspected. Dr. Monier-Williams finds that the nitrous acid can be destroyed by heating the acidified milk with a little urea, after which it gives the formaldehyde reaction readily enough when that preservative is present. Reference in the report is also made to another proprietary preservative called "acoine" which contains sodium benzoate and sodium carbonate. Fluorides and sulphites are also offered as preservatives for milk products. The detection of the latter is easy, but the detection of fluorides is troublesome. Dr. Monier-Williams points out, however, the value of the titanium test, which depends upon the bleaching action of fluorine compounds upon a peroxidised titanium solution, the orange-yellow colour of which is partially discharged in the presence of fluorine compounds. It is obvious that these reports, which are issued from time to time by the Local Government Board must be of the greatest possible assistance to the analytical machinery of the Food and Drugs Acts. A question, however, which deserves very careful consideration, is whether it would not be better to control these

practices by sampling articles in the possession of the vendor, instead of relying upon the detection of preservatives in milk or cream as sold to the consumer. We have frequently pointed out the unsatisfactory position of the preservatives question, inasmuch as although regulations in regard to their use have been recommended by a departmental committee, no definite steps have been taken by the State. We believe, however, that the Local Government Board has for some time been giving close attention to the subject, and before long it is hoped that an official scheme, providing for the control of the use of preservatives in food, will be issued.

WE regret to announce the death on the night of Feb. 8th of Sir William Henry Allchin, M.D. Lond., F.R.C.P. Lond., physician extraordinary to the King and consulting physician to Westminster Hospital. A memorial service was held in the chapel of Westminster Hospital on the morning of Feb. 15th. We shall publish an obituary notice of Sir William Allchin in our next issue.

Mr. Lewis Harcourt, the Secretary of State for the Colonies, will address a meeting of the supporters of the London School of Tropical Medicine which will be held at the Mansion House, under the presidency of Sir Thomas Crosby, M.D., the Lord Mayor of London, on Wednesday, Feb. 28th, at 3 o'clock.

A DINNER was given on Thursday, Feb. 8th, at the Hotel Cecil, by the colleagues, old students, and former pupils of Sir Thomas Barlow and Mr. Rickman J. Godlee, as a compliment to the Presidents of the Royal English Colleges of Physicians and Surgeons. The chair was taken by Sir John Tweedy, and about 150 attended a very successful dinner.

Lieutenant-Colonel Sir Richard Havelock Charles, K.C.V.O., Serjeant-Surgeon to the King, and Fleet-Surgeon Robert Hill, M.V.O., R.N., Fleet-Surgeon to the *Medina*, have been promoted, respectively, Knight Grand Cross and Commander of the Royal Victorian Order. Lieutenant-Colonel Robert Bird, C.I.E., Professor of Surgery in the Medical College at Calcutta, and Mr. William Turner, M.D. Edin., Surgeon to the Colonial Hospital at Gibraltar, have been appointed Members of the Royal Victorian Order.

A MEETING of the Organisation Committee of the Seventeenth International Congress of Medicine will be held on Monday next at 5 P.M., in the Library of the Royal College of Physicians of London. We understand that H.R.H. Prince Arthur of Connaught has consented to open the Congress, and that the following have consented to give general addresses: Professor Chauffard (medicine), Professor Harvey Cushing (surgery), and Professor Ehrlich (pathology).

Sir George Hare Philipson, the President of the Newcastle College of Medicine, has been appointed by the Senate Vice-Chancellor of the University of Durham.

Surgeon-General W. B. Bannerman, I.M.S., late Director of the Bombay Bacteriological Laboratory, and now of the Madras Presidency, has telegraphed to Sir Ronald Ross, professor of tropical medicine in the University of Liverpool, that Captain W. S. Patton, I.M.S., assistant director of the King Institute of Preventive Medicine, Madras, has discovered the complete development of the parasite of kala-azar in Indian and European bed bugs.

AN EXAMINATION OF THE MEDICAL PROVISIONS OF THE NATIONAL INSURANCE ACT.

BY WILLIAM A. BREND, M.A. CAMB., M.B., B.SC. LOND.,
OF THE INNER TEMPLE, BARRISTER-AT-LAW; LECTURER ON FORENSIC MEDICINE, CHARING CROSS HOSPITAL.

II.[1]

The Benefits.

THESE are defined in Section 8, Subsection (1) of the Act, which commences with the important words qualifying the whole subsection: "Subject to the provisions of this Act the benefits ..... are ....."

Medical benefit.—"Medical treatment and attendance, including the provision of proper and sufficient medicines, and such medical and surgical appliances as may be prescribed by regulations to be made by the Insurance Commissioners."

The first point to notice is that nowhere in the Act is any indication directly given of what is meant by the words "medical attendance and treatment." In the ordinary sense medical treatment includes a great deal more than the services usually rendered by general practitioners. It embraces forms of treatment, such as the performance of major operations, determination of errors of refraction, and pathological investigations, which can only be given by those who have acquired special knowledge; as well as therapeutic measures which, though given under the orders of a medical man, would not actually be carried out by him—for example, sick-nursing, courses of massage, Weir-Mitchell treatment, &c. The question therefore arises, Is an insured person entitled to full medical attendance and treatment of every kind for any affection or injury, save maternity, from which he or she may be suffering? That is, such treatment as would be received under ordinary circumstances by a person to whom expense was no consideration. If not so entitled, to what extent is the treatment and attendance limited?

That the Act contemplates insured persons receiving some of the special forms of treatment indicated above may be inferred from other sections. Section 21, for instance, runs:—

> It shall be lawful for an approved society or Insurance Committee to grant such subscriptions or donations as it may think fit to hospitals, dispensaries, and other charitable institutions, or for the support of district nurses, and to appoint nurses for the purpose of visiting and nursing insured persons, and any sums so expended shall be treated as expenditure on such benefits under this part of this Act as may be prescribed.

This is a permissive section, but it is legitimate to infer that such subscriptions will not be granted unless the hospitals are utilised for the reception of insured persons, presumably surgical and serious medical cases. It is important to notice that the cost of neither this nor nursing necessarily comes out of the sum allocated for medical benefit. In Section 14, dealing with the rules which approved societies are empowered to make for the administration of sickness, disablement, and maternity benefit, we find "(2) no such rule shall prescribe any penalty ..... on account of the refusal by any such person to submit to a surgical operation or vaccination or inoculation of any kind, unless such refusal in the case of a surgical operation of a minor character is considered by the society or on appeal to the Insurance Commissioners, unreasonable." Clearly, again, the performance of both major and minor surgery is contemplated.

On the other hand, Section 15, which deals with the administration of medical benefit, shows that the Commissioners have discretionary powers. The essential clauses are—

> 1. Every Insurance Committee shall for the purpose of administrating medical benefit, make arrangements with duly qualified medical practitioners in accordance with regulations made by the Insurance Commissioners.
>
> 2. The regulations made by the Insurance Commissioners shall provide for the arrangements made being subject to the approval of the Insurance Commissioners and being such as to secure that insured persons shall, save as hereinafter provided, receive adequate medical attendance and treatment from the medical practitioners with whom arrangements are so made.....

[1] Article I. was published in THE LANCET of Feb. 10th, p. 383.

Then follow the clauses dealing with the preparation of lists of medical men to attend insured persons, and the section continues:—

> Provided that, if the Insurance Commissioners are satisfied after inquiry that the practitioners included in any list are not such as to secure an adequate medical service in any area, they may dispense with the necessity of the adoption of such system as aforesaid as respects that area, and authorise the Committee to make such other arrangements as the Commissioners may approve; or the Commissioners may themselves make such other arrangements as they think fit.....

It will be noticed that the word "adequate" is used twice in this section, but no indication is given of the meaning to be attached to it. Apparently the Commissioners are to be the sole judge of what is or is not adequate medical attendance and treatment, and they may be influenced by considerations other than those purely medical. The arrangements are to be made with "duly qualified medical practitioners." If this meant *general* practitioners clearly the service would be limited to such treatment as they could give, and would, as a rule, exclude major surgery. But consultant physicians and surgeons are undoubtedly also "medical practitioners," and the Commissioners might consider a service inadequate which did not include a certain number of such upon each panel, or they might feel constrained to make additional arrangements for the performance of surgery and other special services.

The above considerations have been brought forward for the purpose of showing how extremely indefinite the Act is on the question of medical treatment and attendance, and how wide the powers of the Commissioners are. Until the regulations are published, it will be impossible to determine the services which are to be performed by medical men, and how far hospitals and other institutions will be utilised to reduce the amount of attendance necessary. Further, the profession is not justified in assuming that remuneration will come to them only out of the fund for medical benefit. While, as shown above, part of the actual medical treatment may be paid for out of other funds, services may be required from medical men in connexion with each of the other benefits for which they will be fully entitled to demand remuneration.

Suspension of Medical Benefit.

It is convenient here to consider what is likely to be the immediate consequence should medical practitioners decline to enter into contracts under the Act.

Section 15 provides that when in any area the Commissioners consider the service inadequate they "may suspend the right to medical benefit in respect of any insured persons in the area for such period as they think fit, and pay to each such person a sum equal to the estimated cost of his medical benefit during that period, and, where the Commissioners take any such action, themselves they shall retain and apply for the purpose such part of the sums payable to the Insurance Committee in respect of medical benefit as may be required."

An insured person will accordingly receive his money equivalent of medical benefit and will go and make his own arrangements for medical attendance, in most cases through the Friendly Society of which he is a member. Will not this be, in effect, largely reverting to the position which existed on the introduction of the Bill—viz., control of medical benefit by friendly societies? However just the opposition to the Act, the profession has no fresh cause of quarrel with Friendly Societies. Medical officers of such institutions might refuse to take new members at the old rates, but many are under contracts as regards existing members which they would find difficult to break. The experience of the past in the matter of Friendly Society appointments and united action has not been very encouraging.

Sanatorium Benefit.

"Treatment in sanatoria or other institutions or otherwise when suffering from tuberculosis, or such other diseases as the Local Government Board with the approval of the Treasury may appoint." In Section 16 it is amplified to include (*a*) treatment "in sanatoria and other institutions, with persons or local authorities (other than poor law authorities) having the management of sanatoria or other institutions approved by the Local Government Board"; and (*b*) treatment "otherwise than in sanatoria or other institutions, with persons and local authorities (other than poor law authorities) undertaking such treatment in a manner approved by the Local Government Board."

The administration of sanatorium benefit is in the hands of the Insurance Committees, but the arrangements must be "to the satisfaction of the Insurance Commissioners." A million and a half sterling is available for the founding of institutions under the direction of the Local Government Board, and a million annually for their maintenance.

It will be seen that the widest possible latitude is allowed as to the methods of procedure to be followed. Sanatoria in the limited sense of the word and hospitals for advanced cases may be built and maintained. Anti-tuberculosis dispensaries may be established in every district. There is nothing in the Act to prevent such institutions being staffed by local medical men, nor is there any reason why all the practitioners on a panel should not be recognised by the Insurance Committee as persons "undertaking treatment" within the meaning of Section 15, providing the treatment is in a manner approved by the Local Government Board. In view of the frequency of tuberculosis this opens up important possibilities. It would be quite legal for arrangements to be made whereby a general practitioner continues to treat a case of tuberculosis himself, but is able to command the assistance of a local antituberculosis dispensary for making bacteriological and other investigations and applying special forms of treatment. The person so treated would become the recipient of sanatorium benefit and the Insurance Committee would have the power of paying his medical attendant a fee from the fund available for sanatorium benefit in respect of him. It is, indeed, in the best interests of the service that medical men on the panel should be closely in touch with the administration of sanatorium benefit, for by that means early and efficient treatment of cases of tuberculosis will be secured.

Maternity Benefit.

The Act imposes no obligation upon a woman to be treated by a medical man during parturition. The benefit, a sum of 30*s.*, is to be administered by approved societies, and may be in cash or otherwise. Medical men will treat such persons as private patients, but presumably they will demand higher fees from those in receipt of maternity benefit than they now get.

There is a curious provision in Section 18. The last paragraph, after stating that a woman shall have the choice of being attended by a medical practitioner or midwife, continues: "but if, in the case of a midwife being selected, a duly qualified medical practitioner is subsequently summoned in pursuance of the rules made under the Midwives Act, 1902, the prescribed fee shall, subject to regulations made by the Insurance Commissioners, be recoverable as part of the maternity benefit." It is not clear what is meant by the words "prescribed fee." No fee is mentioned in the Midwives Act, and as the arrangement will be a private one between doctor and patient in maternity cases, the Insurance Commissioners will not have the power to prescribe a fee. Under existing arrangements local authorities have agreed in some instances to pay a fee, usually of 1 guinea, to medical men called in under the Act. As the cases are specially difficult medical men have long felt that this remuneration is inadequate, and they would be fully justified in declining to treat insured persons under such circumstances at that fee.

Some interesting problems are likely to centre round the meaning to be attached to the word "confinement." Presumably it will not apply to expulsion of the uterine contents during the early months of gestation. It will be necessary therefore to fix a stage of development of the fœtus, after which the uninsured wife of an insured man will be able to claim maternity benefit. The same point will determine when an insured woman will be entitled to medical benefit for abortion, and when to maternity benefit. If any such rule as that which applies in the case of the Notification of Births Act—viz., 28 weeks' development—be adopted, difficulties will arise in practice. Theoretically, such a dividing line is excellent; practically, it cannot be determined without a considerable margin of error. In the case of the Notification of Births Act it does not seriously matter if a certain number of notifications of births under 28 weeks gestation are made. When the question of medical or maternity benefit is involved the circumstances will be more closely scrutinised. One can imagine the case where, in an uninsured woman, it has been decided to induce premature labour. If done to-day she receives no benefit; if postponed till next week, though perhaps prejudicial to her health, she receives maternity benefit.

Sickness and Disablement Benefits.

Sickness benefit is the right to periodical payments "whilst rendered incapable of work by some specific disease or by bodily or mental disablement." Disablement benefit is the right to payments after the termination of sickness benefit "so long as so rendered incapable of work by the disease or disablement."

These benefits are to be administered by approved societies, and do not, as far as the Act is concerned, directly affect medical men, since their contracts will only be with Insurance Committees. But it is obvious that for the proper discharge of their obligations approved societies will have to seek the assistance of medical practitioners. Medical certificates will be required to prove that persons are incapable of work from disease or disablement, and repetitions of these certificates at intervals so long as either benefit is claimed. Such certificates are not in the nature of medical treatment, and they impose legal responsibilities upon the persons who give them, possibly entailing attendance at civil or criminal courts. Medical men would, therefore, be justified in demanding fees for them, which would presumably be paid out of the funds available for sickness and disablement benefit. Nor are these the only medical services which may be required by approved societies. The section previously quoted places with them the obligation of determining, not only when refusal to submit to a surgical operation is "unreasonable," but what constitutes "minor" surgery. Further, the societies may make rules suspending the payment of sickness or disablement benefit on the ground that the disease or disablement has been caused by the misconduct of the person claiming the benefit. It is not likely that approved societies will settle these matters by the aid of lay opinion only.

Free Choice of Doctor.

Section 15 provides that an insured person may select from a list of medical practitioners the practitioner by whom he wishes to be attended, subject to the consent of that practitioner to attend him. The right of a practitioner to refuse persons is not absolutely unlimited, for persons who have been refused are to be distributed among the practitioners on the list, and thus a person who had been refused by every doctor would, in the end, come to one who had declined him. However, the distribution is to be made as far as possible by the practitioners themselves, and the number of such cases is not likely to be great.

A more important clause in this section is that which embodies what is known as the "Harmsworth" amendment. It provides that where persons are receiving medical attendance and treatment under any system or through any institution existing at the time of the passing of the Act such medical attendance and treatment, if approved by the Insurance Committee and Commissioners, may be treated as, or as part of, medical benefit; but no person is to be deprived under this clause of his right, if he so elects, to choose his own medical attendant.

It has been said that this provision will perpetuate the existence of institutes which provide medical attendance of an incomplete or unsatisfactory character among the poorer classes. But such a danger is probably sufficiently guarded against by the necessity of obtaining the approval of the Commissioners, and the retention by the members of the right of free choice of doctor. On the other hand, it safeguards the holders of certain existing appointments which nobody wishes to disturb. There are cases where medical men have been appointed by the management of firms or public companies to look after the health of their employés upon terms and conditions satisfactory to all parties. Such arrangements can thus be continued unchanged.

Control of the Medical Service.

The Bill when first introduced placed the administration of medical benefit in the hands of approved societies. By amendments made later it was assigned to the Insurance Committees. But owing to the constitution of these bodies it is argued that the administration will still be by approved societies, but under another name. Three-fifths of the total number are to be representatives of insured persons, and one-fifth is to be appointed by the county or borough council. Two members are to be elected by local medical practitioners, and one, two, or three medical practitioners are to be appointed by the County or borough council according to the size of the committee. The remaining members are to be appointed by the Insurance Commissioners.

If "administration" connoted "control" it is undoubted that the powers of the profession would be limited to stating their case. But perusal of the Act makes it clear that by far the largest element of control will rest with the Commissioners. In practically every matter the Committees have to act in accordance with regulations made by the Commissioners, and every arrangement has to receive the approval or consent of the Commissioners, including the arrangements made with medical practitioners and the administration of medical benefit. The Insurance Committees cannot remove a medical man from the panel, nor can they contract separately with any individual practitioner. For the protection of their interests, therefore, the profession should in the first instance look to the Insurance Commissioners. This body is required by the Act to set up as soon as possible an Advisory Committee to assist it in the framing of the regulations, and the medical profession has been promised an opportunity of nominating as members of the Committee medical men who have had personal experience of general practice. In view of the importance of the regulations, is it not a tactical mistake for the profession to decline to appoint these representatives? By making the appointments it does not in any way commit medical men to working under the Act, while if the regulations should prove unsatisfactory the profession is in a stronger position to win public support if it can say that no effort has been spared to make the present Act workable.

A local medical committee may be formed in each district, and, provided it is representative of the medical practitioners resident in that district, the Insurance Committee is required by the Act to consult it upon all general questions affecting the administration of medical benefit, including the arrangements made with medical practitioners. The constitution of these committees is left entirely to the medical men. They will be of value in helping to secure unanimity of action, not only in each district, but throughout the whole country. If formed in the first instance for the purpose, they will be able to appoint the local medical representatives upon the Insurance Committees. Medical committees will possess no direct controlling power, but their moral effect may be considerable. The lay members of an Insurance Committee will require strong justification to override the deliberately expressed wishes of the majority of the medical men in the neighbourhood.

The Insurance Commissioners may require the medical committees to perform other duties and exercise other powers. It is impossible to forecast these duties, but it would conduce to the efficiency of the service if they included the power to investigate cases of alleged malingering. They might well also be given the right to inquire into anything of the nature of unprofessional conduct by medical men, and to exercise, where necessary, modified disciplinary powers. While every medical man has a statutory right to be on the panel in his district (or, if necessary, on two or more panels), the power to remove a name rests solely with the Commissioners, who, however, cannot act until after inquiry. As the Act does not lay down any special form of procedure for the inquiry, the profession might quite reasonably ask that it should be in the first place conducted by the local medical committee.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next quarterly meeting of this association will be held at the London County Asylum, Long Grove, Epsom, on Feb. 22nd, under the presidency of Dr. W. R. Dawson. At 11 A.M. there will be an inspection of the buildings, when a description of the asylum and its heating and lighting arrangements will be given by Mr. T. G. Hine, the architect, and Mr. W. Clifford Smith, M.Inst.C.E., respectively. At 2.15 P.M. Dr. G. F. Barham and his colleagues will give a clinical demonstration of cases of interest; Dr. David Blair (Lancaster) will read a paper on Forced Feeding; and the following papers will, so far as time permits, be read by members of the medical staff at Long Grove: Dr. Barham, Insanity with Myxœdema; Dr. Bernard Hart, a case of Double Personality; Dr. Edward Mapother, Aphasia in General Paralysis and the Conditions Associated with It; and Dr. J. E. Martin, a case of Hysterical Hemianæsthesia with Torticollis and Talipes.

REPORT AND PAPERS ON EPIDEMIC POLIOMYELITIS.

THIS report, which has just been presented to the Local Government Board, is divided into five sections:—1. Dr. R. J. Reece on the Prevalence of Acute Poliomyelitis in Devonshire and Cornwall in 1911. 2. Dr. Reginald A. Farrar on Outbreaks of Disease affecting the Cerebro-Spinal System in the Midland Counties and in Dorsetshire, 1910. 3. Dr. Mervyn Gordon on Acute Poliomyelitis with Reference to its Etiology, Histology, and as to Immunity. 4. Dr. Mervyn Gordon on the Result of the Examination of Materials Received in Connexion with Dr. Reece's Inquiry in Devon and Cornwall. 5. Clinical and Epidemiological Notes on Epidemic Poliomyelitis, by Dr. Hugh A. Macewen.

The report is prefaced by an introduction by Dr. Newsholme, principal medical officer to the Board, and a copy of the memorandum on Acute Poliomyelitis circulated to the sanitary authorities in December, 1911.

Section 1: Outbreaks in Cornwall and Devon.

The attention of the Local Government Board having been called at the end of July, 1911, to several cases of illness which were considered to be of the nature of cerebro-spinal meningitis in the neighbourhood of Holsworthy in North Devon, Dr. Reece was sent down to investigate the matter.[1] He found that the illness was more widespread than had been at first suspected, and that cases occurred throughout Devon and Cornwall. A map is appended to the report which shows the distribution of the 154 known cases. Of these, 42 occurred in the rural district of Holsworthy, 17 in the Bideford district, 15 in South Molton district (all within a small radius of one another), and the remainder at various points throughout Devon and Cornwall. The list does not include the borough of Plymouth and Devonport, in which many cases were known to occur. Death took place in 34 of the 154 cases—a case fatality of 22·1 per cent., which is higher than most of the epidemics abroad, and, as the writer points out, is consistent with the view that the mild cases have escaped recognition.

A series of tables dealing with age-incidence, seat of paralysis, and time after the onset of disease at which death occurred are given, together with certain climatic, topographical, and industrial details. The clinical characters are analysed, and it is stated that examples of all the different types of the disease, as given by Wickman, were observed, except the "ataxic" type. The relative frequency of such symptoms as rise of temperature, headache, vomiting, convulsions, hyperæsthesia, anæsthesia, Kernig's sign, condition of reflexes, epistaxis, retraction of the head and neck, rashes, herpes, and sweating are given. It is interesting to note that in 14 cases definite hyperæsthesia is said to have been present, and in one case almost complete anæsthesia.

Kernig's sign was recorded as being present in 63 cases and absent in 41; in 50 cases there was no record. The writer of the report goes on to say: "As to whether it is elicited in certain cases must depend on the personal factor of the examiners; many persons in health cannot completely extend the leg on the thigh when the latter is flexed, and this fact leads to uncertainty with regard to Kernig's sign when the examiner has never examined a case where the sign is undoubtedly present." There seems some confusion here as to how the clinical sign should be elicited. It is, however, a matter of small importance, for Kernig's sign is of little or no diagnostic value. It is notable that the patellar reflex is only recorded in some 80 out of the 154 cases, and the condition of the plantar reflex is not recorded in precise terms. Herpes is described as occurring 7 times, twice in the form of herpes labialis. The report states that multiple cases in a household were met with in 11 instances. In 4 instances there were 2 cases, in 2 there were 3 cases, in 4 there were 4 cases, and in 1 instance 6 cases in a house.

The possible transportation of infection by an apparently healthy carrier is next dealt with, and a most interesting instance is given in which the father of a child with undoubted poliomyelitis apparently carried the infection to two children in an isolated farm ten miles distant. A second instance is given in which a nurse washed the body of a child who had died from the disease and subsequently attended a woman in her confinement. This woman on the sixth day after delivery had a series of convulsions associated with albuminuria and paralysis of the left arm. The diagnosis here of poliomyelitis is very arguable, for the case would seem more probably to be one of eclampsia. The examination of the cerebro-spinal fluid has been made in very few cases, as the reports say it has been most difficult to obtain these for examination. The report mentions the possibility of the disease occurring in animals, and gives facts with regard to the sudden death of two pigs and other animals in association with cases of the disease.

One of the most interesting features in the report is that of an epidemic disease which occurred at Stoke Rivers, a small village seven miles from Barnstaple, and was investigated by Dr. Harper and Dr. Adkins. (The cases in this epidemic are not included in the 154 cases mentioned above.) This village has 18 houses and a population of 119 persons. Of these, 61 were above school age, 43 attended school, and 15 were below school age. In this community 36 persons were attacked with illness—35 during the month of September and 1 in August; 9 other persons suffered in a minor degree. Of these 36 persons, 4 were over school age, 6 were under school age, and 26 were attending school. 14 out of the 18 houses in the village were affected.

The details afford most interesting reading. The illness was attended by headache, vomiting, sore-throat, fever, and diarrhœa. The absence of the knee jerk which attended or followed the illness was the most constant feature. In only three of these cases did paralysis occur. Two children had facial paralysis, and one lad, aged 17, had still on Oct. 8th "difficulty in standing."

Dr. Adkins says: "The facts are put on record for what they are worth." The writer of the Local Government report says it is difficult to resist the conclusion that certain of the cases above detailed were attacks of poliomyelitis. The conclusion is of course speculative, for among the whole 36 cases there is not a single case of definite poliomyelitis. It is admitted by all that facial paralysis, although occasionally a manifestation of poliomyelitis, is yet much more frequently due to some septic infection arising from the teeth or throat. Again, the case of the boy aged 17 with weakness of the legs cannot be accepted as an undoubted case of poliomyelitis. In none of the epidemics of poliomyelitis so far reported has the proportion of "abortive" cases amounted to 92 per cent. Neither have they failed to contain instances of the common type. Before accepting an epidemic with such unusual features as due to poliomyelitis, far more proof would be required, both with regard to the faucial conditions and also in regard to the cerebro-spinal fluid. Although we may be critical of the deductions, no one can fail to appreciate the admirable way in which the Stoke Rivers epidemic has been worked out.

Dr. Reece comments on the sanitary administration in Devon and Cornwall, and calls attention to the inadequate provision for dealing with infective disease in these two counties. Photographs of the "isolation hospital" of the urban and rural district council of Holsworthy are given. The difficulty of dealing with an infective person is shown by the case of a nurse who, taken ill during the performance of her duties, would, but for the kindness of the medical attendant who took her into his own house, have been left without a refuge.

Outbreaks in Midland Counties and Dorset.

The second section deals with an outbreak of disease affecting the cerebro-spinal system in the Midland counties and an epidemic of poliomyelitis in Dorset in 1910. The cases occurred in Nottingham and in the Melton Mowbray district. Information was obtained with regard to 83 cases; 11 of these occurred in the city of Nottingham. Of these 11 cases 6 were fatal; 1 on post-mortem examination was a case of streptococcal meningitis, another probably tuberculous meningitis, and in 6 a "Gram-negative" diplococcus was found. Dr. Farrar concludes that there were 8 cases occurring in Nottingham and 1 at Barlestone which must be regarded as true cerebro-spinal fever, leaving 74 cases which belong to a different category. He gives good reason for regarding these 74 cases as poliomyelitis, since practically all had localised paralysis of a muscle or groups of muscles, and as he points out this is a characteristic feature of poliomyelitis and a rare manifestation of cerebro-spinal fever. He also notes the age-incidence

[1] THE LANCET, Sept. 16th (p. 843) and 23rd (p. 896), 1911.

and the occurrence of the disease during the summer in support of the view that they were cases of poliomyelitis. In only 9 cases was the cerebro-spinal fluid withdrawn by lumbar puncture, and in only 4 of these was it examined, and in all of them an excess of polynuclear leucocytes was present, which would seem to point to a meningitis. In conclusion, Dr. Farrar says that pathological investigation, so far as it was carried out in respect to the 74 cases under consideration, gave no support to the view that any of these were cases of cerebro-spinal fever, and he has no hesitation in concluding that the outbreak was one of epidemic poliomyelitis, and not of cerebro-spinal fever.

The outbreak at Cerne Abbas and Up Cerne in Dorset occurred between Sept. 29th and Oct. 21st, 1910. In these little hamlets 16 cases occurred with 2 deaths. The history of these cases is given in detail. Multiple attacks occurred in three households—viz., three cases in one household and two in each of the others. The cerebro-spinal fluid was not examined in any case. The origin of the outbreak could not be discovered, but the village is a frequent resort of visitors from Dorchester and Weymouth.

Experimental and Pathological Investigations.

In the third section Dr. Mervyn Gordon gives a good digest of the work on experimental poliomyelitis in monkeys, and details as to the nature of the virus. He states that the recognition of poliomyelitis in fatal cases is easy, owing to the very characteristic histological lesions which occur in the cord. He gives a table showing the chief points of distinction between a meningococcal meningitis, a septic meningitis, a tuberculous meningitis, and a poliomyelitis.

In the fourth section Dr. Mervyn Gordon gives the results obtained from examination of material received from the cases in Devon and Cornwall. He states that the cells present in the cerebro-spinal fluid were lymphocytes, but he does not give the number of specimens examined. He suggests that the retention of the capacity of the cerebro-spinal fluid in poliomyelitis to reduce Fehling's solution may be of value in the distinction between the cerebro-spinal fluid of poliomyelitis and that of tuberculous meningitis. A series of excellent photographs are given illustrating the changes found in cases of acute poliomyelitis. He acknowledges his indebtedness to the courtesy of Professor Levaditi, of Paris, for the animal experiments he has carried out with the material from this outbreak. Professor Levaditi reported that two monkeys injected with emulsions of the cord from two cases developed typical poliomyelitis.

Clinical and Epidemiological Aspects.

The fifth section is a digest of the clinical and epidemiological aspects of acute poliomyelitis compiled by Dr. Macewen from various sources.

Dr. Newsholme in his introduction notes the importance of watching for the occurrence of epidemic poliomyelitis in England in order to take a suitable opportunity to make a comprehensive study of its clinical and epidemiological characters. He summarises the facts which have already been given in the above report, and states that "it is evident that much further research work is needed both in the laboratory and by exact and painstaking inquiry into the circumstances of local outbreaks, with a view to the more exact determination of means of communication of this disease, and to the discovery of practically available methods of recognising the presence of infection in early cases of suspected disease, and in contact with known cases of the disease."

EIGHTH CONGRESS OF THE GERMAN ROENTGEN SOCIETY.—This Congress will take place at Berlin (Langenbeckhaus) on Sunday, April 14th, commencing at 9 A.M. punctually. On the previous evening at 8 P.M. any projections which may be necessary to show in connexion with the next day's papers will be then exhibited in order to unburden the proceedings on the Sunday. Papers and demonstrations must be sent before March 1st to Herr Dr. Immelmann, Lützowstrasse, 72, Berlin, W. 35. Communications with respect to membership and subscriptions should be made to Herr Melzer, Ziegelstrasse, 10/11, Berlin, N. 24. Dr. A. Köhler, of Wiesbaden, is the President for the year 1912.

VENTILATION AND OZONE.

AT a meeting of the Royal Society of Arts held on Feb. 7th, Lord Sanderson being in the chair, Dr. Leonard Hill read a paper entitled "The Influence of Ozone in Ventilation."

Chemical Purity of the Air.

At the commencement of the paper, which was a joint communication by himself and Dr. Martin Flack, and occupied about an hour in delivery, Dr. Hill said that the good effects which resulted from efficient ventilation and open-air treatment were generally supposed to be due to the chemical purity of the air, but this was an error, because the effects in question were really due to the movement, coolness, and relative humidity of the air, and to the ceaseless variations of these qualities. The chemical purity of the air could be considered from three points of view—namely, the concentration of carbon dioxide, the concentration of oxygen, and the supposed presence of organic poison exhaled in the breath.

Concentration of Carbon Dioxide.

It was an error to imagine that respired air was rendered poisonous by the presence of carbon dioxide in amounts exceeding a very few parts per 1000. The truth of the matter was quite otherwise, for whatever the percentage of carbon dioxide in the atmosphere might be, that in the pulmonary air was kept constant at about 5 per cent. of an atmosphere by the action of the respiratory centre. At each breath a person rebreathed into his lungs the air in the nose and large air-tubes (the dead space air), and about one-third of the air which was inhaled into the lungs was "dead space" air. This re-breathing of one's own breath was a natural and inevitable performance for both human beings and the lower animals. By a series of observations made on rats confined in cages with small ill-ventilated sleeping chambers Dr. Hill and Dr. Flack found that the temperature and humidity of the air—not the carbon dioxide and oxygen concentration of the air—determined whether the animals stayed inside the sleeping chamber or came outside. If the air was cold they stayed inside, even when the carbon dioxide rose to 4 or 5 per cent. of an atmosphere. When the sleeping chamber was made too hot and moist they came outside.

In breweries the men who tended the fermentation vats worked for long hours in concentrations of carbon dioxide of 0·5 to 1·5 per cent., and such men were no less healthy and long-lived than those engaged in other processes of the brewing trade. It was only at higher concentrations of carbon dioxide, such as 3 to 4 per cent. of an atmosphere, that the respiration was increased so as to become noticeable to the individual himself; the limit of panting was then soon reached and the power to do work was checked. Divers who followed their occupation in diving dresses and men employed in compressed-air caissons constantly worked in concentrations of carbon dioxide higher than 1 per cent. of an atmosphere, and so long as the carbon dioxide was kept below 2 to 3 per cent. of an atmosphere they were capable of doing efficient work.

Concentration of Oxygen.

Turning now to the question of the percentage of oxygen present in inhaled air, Dr. Hill said that the oxygen in the worst ventilated schoolroom, chapel, or theatre was never lessened by more than 1 per cent. of an atmosphere, but in all the noted health resorts of the Swiss mountains, such as St. Moritz, the concentration of oxygen was considerably less than this. In Potosi, a city of 100,000 inhabitants at an altitude of 4165 metres in the Andes, the barometric pressure was only about 450 millimetres of mercury, but the people nevertheless displayed great agility in dancing and in bull-fights. Dr. Hill and Dr. Flack had watched students shut up in an air-tight chamber until they came to breathe air containing 3·5 per cent. of carbon dioxide and only about 16 per cent. of oxygen—air in which they found they were unable to light a match and smoke a cigarette. There was then too low a percentage of oxygen to support combustion, but of this the occupants of the chamber were quite unaware. All the evidence went to show that it was only when oxygen

was lowered below a pressure of 14 to 15 per cent. of an atmosphere that signs of bodily distress for want of oxygen arose.

Supposed Presence of Organic Poisons.

The facts already mentioned with regard to the atmosphere in which certain brewery workers, caisson workers, and divers followed their occupation proved that concentrations of carbon dioxide such as occurred in the most crowded and worst ventilated rooms were not directly injurious to health. Forced to admit this, the hygienist has fallen back on the hypothesis that organic chemical poisons were exhaled in the breath, and that the percentage of carbon dioxide was a valuable guide to the concentration of these. It was necessary, said the hygienist, to keep the carbon dioxide below 0·1 part per 1000, so that the organic poisons might not collect to a harmful extent. The supposed existence of organic chemical poison in the expired air was based upon experiments made by Brown-Séquard and d'Arsonval, who injected into guinea-pigs and rabbits either the condensation water obtained from the breath or water which they had used several times over to wash out the trachea of dogs. The water was injected subcutaneously and in large amounts, and produced in their hands signs of illness, collapse, and death. A few confirmatory results have been obtained by some experimenters who used such absurd methods of investigation as to collect condensation water by breathing through a cooled flask and to inject 1 or 2 cubic centimetres of this fluid into a mouse weighing about 13 grammes, a proceeding equivalent to injecting 5 litres of water into a man weighing 65 kilogrammes. Who would not be made ill by the injection of about 9 pints of cold water beneath his skin? The experiments of Brown-Séquard and d'Arsonval have been repeated by many others, and with negative results by those whose methods of work demand most respect—Dastre and Loye, Van Hofmann, Wellenhof, Lehmann and Jessen, Haldane and Smith, and Weir Mitchell and Borgey.

Brown-Séquard and d'Arsonval in their experiments either (1) gave intravenous or subcutaneous injections of condensation water from the breath or washings from the trachea, or (2) they kept animals in cages communicating in series, a current of air being drawn throughout the entire length of the series. Dr. Hill and Dr. Flack suggested that the deaths of injected animals were due either to the excessive amount of the fluid injected or to the inclusion in it of droplets of saliva which produced the well-known phenomena of the anaphylactic shock. Anaphylaxis signified the condition in which an animal became sensitised by the subcutaneous injection of a protein derived from an animal of a different species, and an animal thus sensitised might be poisoned by a subsequent injection of the same protein. When the animals in the last of the series of cages died, the fatal effect was probably due to suffocation from the proportion of carbon dioxide in the air having been allowed to rise to 10 or 12 per cent. Dr. Hill and Dr. Flack, after studying the literature of the subject and making various experiments, have come to the conclusion that there was not at present any trustworthy evidence of the presence of organic chemical poisons in exhaled air.

Effects of Electric Fans.

They enclosed eight students in a small chamber holding about three cubic metres of air and kept them therein until the carbon dioxide had reached 3 or 4 per cent. and the oxygen had fallen to 17 or 16 per cent. The wet-bulb thermometer rose meanwhile to about 85° F. and the dry-bulb thermometer to one or two degrees higher. The discomfort was very great, but this was relieved to an astonishing extent when electric fans placed in the roof were set in motion, whirling the air in the chamber, and so cooling the bodies of the students. In a crowded room the air confined between the bodies and clothes of the people was almost warmed up to body temperature and saturated with moisture, so that cooling of the body by radiation, convection, or evaporation became nearly impossible. This led to sweating, wetness and flushing of the skin, and a rise of skin temperature. The blood was sent to the skin and stagnated there instead of passing through the brain and viscera. Hence arose the feelings of discomfort and fatigue, but the fans whirled away the layer of stationary wet air round the students' bodies, replacing it by the somewhat cooler and drier air in the rest of the chamber, and so relieved the heat stagnation from which they suffered.

Prophylaxis of Catarrhal Infections.

Catarrhal infections of bacterial origin were spread by the expulsion of droplets of saliva during the acts of speaking, coughing, or sneezing, and could not be prevented by ventilation. The true prophylactic against such infections was the avoidance of whatever might diminish the natural immunising power of the animal organism. Exposure to overheated dry air dried up not only the skin but the membranes of the nose and throat, and so lessened immunity. Exposure to overheated moist air brought the blood into the skin, lessened the circulation through the viscera, and decreased the evaporation from the respiratory tract; the system also suffered from the absence of the stimulating effect of cold on the cutaneous nerves. Hence arose diminished health and strength together with increased susceptibility to catarrh. Those who habitually exposed themselves to cold rarely took cold. Confinement in overheated stagnant air, which too often pervaded places of business and amusement, was one of the chief causes of the depressed physical and mental vigour of town dwellers.

Properties of Ozone.

Dr. Hill here showed an automatic ventilating fan to be inserted in the window of an apartment; at temperatures below 60° F. it remained closed but above 60° it remained open. He also showed some ozone-generating apparatus of the Ozonair Company. Each complete element of this apparatus consisted of a thin sheet of micanite covered on each side by a square of gauze made of an aluminium alloy and having 40 meshes to the inch. Ozone was produced by the silent discharge of a high-tension electric current from one sheet of gauze to the other across the micanite. Mammals exposed to different concentrations of ozone in a closed chamber were killed by prolonged breathing of an atmosphere containing about 20 parts of ozone per 1,000,000 parts of air, the cause of death being an acute irritative inflammation of the respiratory tract. The ozone in such concentrations made the eyes water and caused coughing. When ozone was employed in ventilation it was arranged so as to produce none of these symptoms of irritation. Ozone could be used in high concentrations for sterilising water, this being one of its most valuable applications. It also destroyed all disagreeable smells. Ozone itself had a peculiar odour, which could be perceived by the nose in concentrations of far less than 1 part in 1,000,000, and for continuous breathing it should be present in concentrations not greater than that which was scarcely perceptible by the nose. Its powerful deodorising properties made it useful in places where offensive trades were carried on, and in improving the atmosphere of tube railways.

MEDICINE AND THE LAW.

Thirty Years of Unqualified Practice.

BEFORE the stipendiary magistrate at Leeds, William Henry Gisburne Bowell, 72 years of age, was recently charged upon five summonses with offences under Section 40 of the Medical Act of 1858, and having been convicted upon one was fined £10, including costs, the other four charges not being proceeded with. Section 40, it will be remembered, is directed against persons who falsely and wilfully pretend to be qualified medical practitioners, the taking or using of titles implying medical qualifications being a manner of committing the offence specially mentioned in the section in the form of an alternative. The career of the defendant has been somewhat remarkable, for he has apparently been generally regarded among his lay neighbours for many years as a qualified medical practitioner, although, presumably, such medical men as were aware of his existence knew that his name was not on the Medical Register.

In the case which was gone into before the magistrate the defendant's lack of qualification and his readiness to give certificates in his assumed character of medical practitioner were brought to light by the naval authorities at Sheerness in a manner unfortunate for the patient implicated in the transaction. A young seaman in the Royal Navy had gone to Leeds on furlough, and on the

way there had injured his knee. Desiring to prolong his leave on account of his injury, he obtained a certificate to that effect from Bowell, paying him a fee of half-a-crown. When it was noticed that the signature upon the certificate was not that of a registered practitioner the young sailor was punished for his action in presenting it by a fine and the loss of a stripe. Apparently the defendant had described himself in a local directory as a medical practitioner and surgeon, and had been acting as surgeon to a Friendly Society's lodge. It was urged on behalf of Bowell, who admitted his offence, that he had assisted an uncle, a qualified practitioner, in his practice from 1859 to 1874, and after that had done the same for a nephew, who succeeded the uncle, from 1874 to 1881, so that he had a lengthy experience. Since 1881 he had practised on his own account without anyone interfering with his doing so, but apparently not with any great success, as he was described by his advocate in an appeal for leniency as being in very poor circumstances. The fine ordered to be paid is half the maximum penalty allowed by the section, and under the conditions indicated will no doubt prove sufficient to prevent the repetition of the illegalities, but the case was not one where mercy was called for.

The local Friendly Society can hardly be congratulated upon the care exercised by it in the choice of a medical attendant for its members; but bone-setters and herbalists have been employed, we believe, by some clubs at the direct instance of their members. An interesting part of the case is the trouble that was brought upon the injured man, whose plight is a hard one. Bowell seems to have been absolutely accepted by the local community as a medical man, and the unlucky seaman went to him in all good faith.

The Chairman of the London County Council and the Council's By-laws.

Mr. Edward White, J.P., chairman of the London County Council, was summoned recently at Marylebone police court by the Marylebone borough council for having constructed at his residence in Upper Berkeley-street soil-pipes of iron instead of drawn lead with proper wiped plumber's joints, as required by by-laws of the London County Council, made under the Metropolis Management Acts of 1855 and 1899, and also for having the work carried out without having previously deposited "plans, sections, and particulars" of it with the borough council. After evidence had been given, and the point had been raised by Mr. White that to constitute an infringement of the by-law the soil pipe complained of must be inside the house, whereas a very small portion of it only was so situated, Mr. Plowden held that the by-law did not contemplate a pipe such as that in question, and that as the council had not satisfied him that the whole pipe was inside the house they could not succeed upon that point. With regard to the failure to deposit plans, he decided in favour of the council and against the defendant, whom he fined 10*s.* with 2*s.* costs. Mr. Plowden does not appear to have taken a very serious view of an offence by the chairman of the body responsible for the sanitation of the County of London against its sanitary by-laws. Nor does Mr. White himself appear to have expressed himself with any very great respect for the regulations made in the interest of the public health by the Council over which he presides, if Dr. C. Porter, medical officer of health of the Borough of Marylebone, is correctly reported to have said in evidence that when he called Mr. White's attention to the matter of the soil pipe he received the reply from Mr. White, who seemed surprised, that he "had had something to do with the passing of the by-laws and thought that some of them were a little silly." It can hardly be encouraging to a borough council in its efforts to secure proper sanitary conditions within its area to find the chairman of the Council of the metropolis describing that Council's own regulations, which it is the duty of the local authority to enforce, as "silly." Nor is a medical officer of health likely to find his own duties rendered more easy to perform by such a pronouncement. If the chairman of the London County Council considers its by-laws silly or not worth attention, his proper course would seem to be to obtain, or to endeavour to obtain, their amendment. Of course, we quite agree that Mr. White's default was only technical, and sympathise with him in having to pay a fine.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 94 largest English towns having an estimated population of 17,559,219 persons in the middle of this year, 8799 births and 7276 deaths were registered during the week ending Feb. 10th. The annual rate of mortality in these towns, which had steadily increased from 14·8 to 18·6 per 1000 in the three preceding weeks, further rose to 21·6 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these large towns averaged 17·0 per 1000, while in London during the same period the average annual death-rate did not exceed 16·3 per 1000. The annual death-rates last week in the several towns ranged from 10·0 in Stockton-on-Tees, 10·1 in Walthamstow and in Southend-on-Sea, 10·7 in Ilford, 11·9 in Devonport, and 12·1 in Swindon, to 31·5 in Plymouth, 32·1 in Gloucester, 32·8 in Merthyr Tydfil, 34·2 in Aberdare, and 40·4 in Walsall.

The 7276 deaths from all causes in the 94 towns were 998 in excess of the number in the previous week, and included 435 which were referred to the principal epidemic diseases, against numbers rising from 297 to 401 in the three preceding weeks. These 435 deaths from the principal epidemic diseases included 186 from whooping-cough, 98 from measles, 64 from diphtheria, 49 from infantile diarrhœal diseases, 22 from scarlet fever, and 16 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·3 per 1000, or 0·3 per 1000 above the average recorded in the five preceding weeks. The deaths attributed to whooping-cough, which had been 81, 94, and 166 in the three preceding weeks, further rose to 186 last week, and caused the highest annual death-rates of 2·4 in Barrow-in-Furness, 2·7 in Preston, 3·7 in St. Helens, 3·9 in Dewsbury, 4·5 in Walsall, and 5·7 in Merthyr Tydfil. The deaths referred to measles, which had been 64, 72, and 63 in the three previous weeks, rose to 98 last week; the highest annual death-rates from this disease were 1·2 in Manchester, 1·4 in Oldham, 1·8 in Newport (Mon.), and 7·1 in Warrington. The fatal cases of diphtheria numbered 64, against 60, 53, and 71 in the three preceding weeks, and included 15 in London and its 14 suburban districts, 4 in Bolton, and 3 each in Norwich, Plymouth, Nottingham, and Preston. The deaths attributed to infantile diarrhœal diseases, which had been 55, 47, and 67 in the three previous weeks, declined to 49 last week; 19 deaths were recorded in London and its suburban districts, 3 in Birmingham, 3 in Liverpool, and 3 in Manchester. The 22 deaths referred to scarlet fever were equal to the average recorded in the three preceding weeks, and included 4 which were registered in Liverpool. The 16 fatal cases of enteric fever, of which 4 occurred in Sheffield, were also equal to the average in the three previous weeks.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily decreased from 2213 to 1500 in the 12 preceding weeks, slightly rose to 1512 on Saturday last; 178 new cases of this disease were admitted to these institutions during the week, against 162, 158, and 169 in the three preceding weeks. These hospitals also contained on Saturday last 1172 cases of diphtheria, 369 of whooping-cough, 137 of measles, 50 of enteric fever, and 2 of small-pox. The 1763 deaths from all causes registered in London were 225 in excess of the number in the previous week, and were equal to an annual death-rate of 20·3 per 1000. The deaths referred to diseases of the respiratory system, which had steadily increased from 290 to 394 in the four preceding weeks, further rose last week to 545, and were no fewer than 141 in excess of the number recorded in the corresponding week of last year.

Of the 7276 deaths in the 94 large towns 222 resulted from different forms of violence, and 541 were the subject of coroners' inquests. The causes of 85, or 1·2 per cent., of the deaths registered in the week under notice were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in 13 of its 14 suburban districts, in Leeds, Bristol, Bradford, Salford, Cardiff, Bolton, and in 44 other smaller towns. The 85 uncertified

causes of death last week included 18 in Birmingham, 17 in Liverpool, 5 in Sunderland, 4 in Nottingham, 4 in Manchester, and 3 each in Stoke-on-Trent, Coventry, Southport, and Darlington.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns having an estimated population of 2,182,400 persons in the middle of this year, 1080 births and 953 deaths were registered during the week ending Feb. 10th. The annual rate of mortality in these towns, which had increased from 17·3 to 19·1 in the three preceding weeks, further rose to 22·8 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual rate of mortality in these Scotch towns averaged 18·8 per 1000, and was 1·8 per 1000 above the mean rate recorded in the 94 large English towns during the same period. The annual death-rates in the several Scotch towns last week ranged from 10·4 in Govan, 11·3 in Motherwell, and 15·3 in Falkirk, to 26·6 in Glasgow, 29·5 in Greenock, and 31·8 in Perth.

The 953 deaths from all causes were 156 in excess of the number in the previous week, and included 100 which were referred to the principal epidemic diseases, against 89 and 100 in the two preceding weeks. Of these 100 deaths, 62 resulted from measles, 14 from whooping-cough, 13 from diphtheria, 6 from infantile diarrhœa, 3 from scarlet fever, and 2 from enteric fever, but not one from small-pox. These 100 deaths from the principal epidemic diseases were equal to an annual death-rate of 2·4 per 1000, or 1·1 per 1000 above that recorded in the 94 large English towns. The deaths attributed to measles, which had been 56, 39, and 55 in the three preceding weeks, further rose to 62 in the week under notice, and included 49 in Glasgow, 7 in Greenock, 2 in Edinburgh, and 2 in Aberdeen. The deaths referred to whooping-cough, which had been 18, 18, and 14 in the three previous weeks, were again 14 last week; and of this number 7 occurred in Glasgow and 3 in Coatbridge. The 13 fatal cases of diphtheria were 1 in excess of the average number in the five preceding weeks, and included 5 in Glasgow and 2 in Aberdeen. The deaths referred to infantile diarrhœal diseases, which had increased from 9 to 13 in the three preceding weeks, declined to 6 last week; 3 deaths were registered in Glasgow. The 3 fatal cases of scarlet fever were 2 fewer than the number in the previous week, and comprised 2 in Aberdeen and 1 in Partick. The 2 deaths attributed to enteric fever were registered in Glasgow and Hamilton respectively.

The deaths referred to diseases of the respiratory system, which had increased from 120 to 144 in the three preceding weeks, further rose to 220 last week; and 22 deaths resulted from different forms of violence.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons in the middle of this year, 526 births and 688 deaths were registered during the week ending Feb. 10th. The annual rate of mortality in these towns, which had steadily increased from 18·0 to 24·6 per 1000 in the six preceding weeks, further rose to 31·0 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these Irish towns averaged 23·1 per 1000; in the 94 large English towns the mean annual death-rate during the same period did not exceed 17·0, while in the 18 Scotch towns it was equal to 18·8 per 1000. The annual death-rates in the several Irish towns last week were equal to 26·6 in Dublin (against 20·3 in London), 41·7 in Belfast, 23·8 in Cork, 20·4 in Londonderry, 17·7 in Limerick, and 20·9 in Waterford; while in the 16 smallest of these Irish towns the death-rate last week was equal to 27·5 per 1000.

The 688 deaths from all causes in the 22 Irish towns were 143 in excess of the number in the previous week, and included 49 which were referred to the principal epidemic diseases, against 30 and 31 in the two preceding weeks; of these 49 deaths, 25 resulted from whooping-cough, 8 from diarrhœal diseases, 6 from diphtheria, 5 from measles, 3 from enteric fever, and 2 from scarlet fever, but not one from small-pox. These 49 deaths from the principal epidemic diseases were equal to an annual death-rate of 2·2 per 1000; the death-rate from these diseases did not exceed 1·3 in the large English towns, while in the Scotch towns it was equal to 2·4 per 1000. The deaths attributed to whooping-cough, which had been 15 in each of the two preceding weeks, rose to 25 last week, and included 15 in Belfast and 5 in Dublin. The deaths referred to diarrhœal diseases, which had been 5 and 7 in the two previous weeks, were 8 last week, all but one of which related to infants under two years of age; 4 deaths were recorded in Dublin and 2 in Kilkenny. The fatal cases of diphtheria, which had been 3 in each of the four preceding weeks, rose to 6 last week, and comprised 3 in Dublin and 3 in Belfast. The 5 deaths attributed to measles were 3 in excess of the number in the previous week, and included 4 recorded in Dublin. The 3 deaths referred to enteric fever occurred in Dublin, Belfast, and Limerick respectively. The 2 fatal cases of scarlet fever, which were registered in Dublin and Galway respectively, were one fewer than the average in the three preceding weeks.

The deaths referred to diseases of the respiratory system, which had steadily increased from 83 to 184 in the seven preceding weeks, further rose to 239 in the week under notice. Of the 688 deaths from all causes in the 22 Irish towns last week, 185, or 27 per cent., occurred in public institutions, and 13 resulted from different forms of violence. The causes of 34, or 4·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 94 large English towns the proportion of uncertified causes of death last week did not exceed 1·2 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeons: J. McElwee to the *Indomitable*, and for general staff duties on transfer of flag; P. V. Jackson to the *Shannon*, and for general staff duties, on recommissioning; and E. A. Shaw to the *Antrim*, on recommissioning. Staff-Surgeons: A. R. H. Skey to the *Indomitable* on recommissioning, until she becomes flagship of Second Cruiser Squadron; N. H. Harris to the *Indomitable*, on transfer of flag; and E. F. Ellis to the *Shannon*, on recommissioning. Surgeons: G. A. Bradshaw to the *Bramble*, additional, and on recommissioning; and F. W. Quirk to the *Moorhen*.

ROYAL ARMY MEDICAL CORPS.

The undermentioned officers are placed on retired pay:—Lieutenant-Colonel Frederick P. Nichols (dated Feb. 9th, 1912). Major Ernest C. Anderson, D.S.O. (dated Jan. 30th, 1912).

The undermentioned Captains to be Majors (dated Jan. 25th, 1912):—William L. Baker, Frederick W. Cotton, Frank M. Parry, Bertram R. Dennis, William J. P. Adye-Curran, John Powell, William Bennett, Thomas Biggan, Basil S. Bartlett, Dermot O. Hyde, Albert E. Hamerton, D.S.O., George J. Houghton, John G. Churton, Arthur D. Waring, Alfred F. Weston, James Dorgan, Charles H. Furnivall, and FitzGerald G. FitzGerald.

Surgeon-General J. G. MacNeece, C.B., principal medical officer of the Sixth (Poona) Division, Southern Army, India, proceeds home. Colonel F. H. Treherne has taken up duty as Principal Medical Officer of the Bangalore and Southern Brigades at Ootacamund. Lieutenant-Colonel N. C. Ferguson, C.M.G., has taken over charge of the Military Hospital at York. Lieutenant-Colonel G. Cree, medical inspector of recruits in the Eastern Command, has been selected for the increased rate of pay under Article 317 of the Royal Warrant. Lieutenant-Colonel W. Turner has taken up duty in charge of the Connaught Hospital at Aldershot. Lieutenant-Colonel A. L. F. Bate has arrived home from India. Lieutenant-Colonel T. B. Winter has assumed command of No. 9 Company of the Royal Army Medical Corps at Colchester on appointment as Senior Medical Officer. Lieutenant-Colonel W. L. Gray has embarked for a tour of service in India.

Major H. N. Dunn, commanding the Station Hospital at Dagshai, Simla Hills, has been detailed for duty on board the hired transport s.s. *Dongola*, leaving Bombay for Southampton on Feb. 23rd. Major H. G. F. Stallard has been

transferred from Cherat to Peshawar. Major E P. Connolly has taken up duty with the Third (Lahore) Division of the Northern Army in India. Major A. W. Bewley has been transferred from Landour cantonment to Meerut. Major H. S. Taylor has been appointed to the Scottish Command. Major E. M. Morphew has taken up duty at Preston. Major F. J. W. Porter, D.S.O., has been transferred from Reading to the Military Hospital at Cosham. Major P. H. Collingwood has taken up duty at Plymouth. Major A. C. Fox has arrived home for duty from Hong-Kong. Major J. W. West has been appointed to Rawal Pindi. Major W. G. Beyts has been transferred from Ranikhet to command the Station Hospital at Roorkee.

Captain J. Tobin has been ordered to join at Gibraltar. Captain J. J. O'Keefe has been granted eight months' general leave of absence home from India. Captain W. J. Waters has joined for duty at Tientsin. Captain H. F. Shea has been appointed Surgical Specialist at the Station Hospital, Ambala. Captain F. A. Stephens has embarked for a tour of service in India. Captain J. S. Bostock has joined for duty at Delhi. Captain W. Davis has been transferred from Bareilly to the Station Hospital at Meerut. Captain W. J. S. Harvey has arrived in Jamaica for a tour of foreign service. Captain M. B. H. Ritchie has arrived home on leave of absence from India. Captain F. C. Lambert has been appointed to Preston for duty. Captain A. H. C. Gray has been selected for attachment to the Dublin University Contingent of the Senior Division, Officers Training Corps. Captain J. B. Meldon has been posted to the Military Hospital at Dover. Captain E. M. Glanvill has been transferred from Leeds to Newcastle. Captain H. Harding has taken up duty at York. Captain E. A. Craig has been appointed to the Royal Army Medical Corps Depôt at Aldershot for a course of instruction. Captain J. H. Campbell has joined for duty at Newport.

The following lieutenants have been appointed for duty: H. G. Monteith, D. W. Bruce, L. Buckley, A. G. J. MacIlwaine, and I. R. Hudleston to the Aldershot Command; and B. H. H. Spence, S. P. Sykes, E. J. H. Cowen, W. Stewart, and R. Davidson to the Eastern Command. Lieutenant D. H. C. MacArthur has been transferred from Dagshai to Ambala. Lieutenant C. H. O'Rorke has taken up duty at the Station Hospital, Bareilly. Lieutenant R. G. M. Kinkhead has been appointed to the Military Hospital at Queenstown. Lieutenant J. Gilmour has embarked for service in Egypt. Lieutenant P. M. J. Brett has been transferred from the Royal Victoria Hospital, Netley, to Cosham. Lieutenant M. White, on arrival in India, has been posted to Lucknow to undergo a course of instruction in military sanitation.

INDIAN MEDICAL SERVICE.

Colonel T. Grainger, C.B., has been selected for appointment as Principal Medical Officer of the Fifth (Mhow) Division, in succession to Colonel C. F. Willis, C.B. Lieutenant-Colonel A. W. Dawson has taken over civil medical charge of Roorkee in addition to his military duties, vice Captain J. J. O'Keefe, R.A.M.C.

Major E. F. G. Tucker has been appointed to officiate as Presidency Surgeon, Third District, and in medical charge of the Common Prison, House of Correction and Byculla Schools, Bombay, vice Major A. W. Tuke. The services of Major H. D. Peile, Superintendent of the Central Prison in the United Provinces of Oudh and Rohilkhand, have been placed at the disposal of the Home Department of the Government of India. Major R. H. Elliot has returned to India from leave of absence home. Major J. H. McDonald has been appointed Civil Surgeon at Surat, vice Major C. C. Murison transferred. Major J. W. Cornwall has been granted two years' furlough home from India.

The services of Captain J. E. Clements have been placed at the disposal of the Government of the United Provinces for employment in the Jail Department. Captain D. M. C. Church has been granted one year's leave of absence home from India. Captain V. B. Nesfield, officiating deputy sanitary commissioner, has been appointed to act as Civil Surgeon at Bijnor. The services of Captain S. B. Mehta have been replaced at the disposal of His Excellency the Commander-in-Chief. Captain R. B. Nicholson has been granted leave of absence for one year. Captain H. S. Hutchison has been appointed to officiate as Deputy Sanitary Commissioner for the Sind Registration District. Captain N. S. Wells has been granted one month's extension of his leave of absence home on the recommendation of a medical board. Captain W. P. G. Williams has been appointed to officiate as Superintendent of the Central Jail at Cannanore, Madras Presidency. Captain B. B. Paymaster has been granted two years' furlough. Captain R. E. Lloyd, professor of biology at the Medical College, Calcutta, has been granted two years' furlough home. Captain W. J. Frazer has been transferred from Chanda to Dehra Dun for a course of instruction at the X Ray Institute. Captain F. T. Thomson has been granted six months' leave of absence on the recommendation of a medical board. Captain J. B. Christian has been appointed Civil Surgeon at Tippera. Captain J. M. A. Macmillan has taken up duty at Hoshangabad as Civil Surgeon. Captain R. E. Wright has been appointed to officiate in the Bacteriological Department, and his services have been placed at the disposal of the Government of Madras. Captain A. G. McKendrick has taken up duty as Statistical Officer to the Government of India in the Sanitary and Medical Departments during the absence of Major S. P. James on deputation to visit the Panama Canal Zone and to attend the Far East Tropical Medical Association.

Lieutenant F. J. Kolaporewalla has been appointed a Specialist in the Prevention of Disease and placed in charge of the Bacteriological Research Laboratory at Rangoon. Lieutenant P. Connellan has been placed under orders to embark for India.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant Charles W. C. Myles is seconded for service with the Dublin University Contingent, Officers Training Corps (dated Feb. 10th, 1912).

No. 18 Field Ambulance: Lieutenant Thomas Carnwath resigns his commission (dated Feb. 10th, 1912).

Correspondence.

"Audi alteram partem."

KING EDWARD'S HOSPITAL FUND FOR LONDON AND THE EVELINA HOSPITAL.

To the Editor of THE LANCET.

SIR,—We venture to trouble you with the following observations in order to remove a misapprehension as to the attitude of King Edward's Hospital Fund which may arise from the published letter of the chairman of the Evelina Hospital. In his statement of the reasons for the refusal of a grant by the King's Fund, the chairman presents the necessary result of a deliberate act of his committee as if it were the arbitrary act of the Fund; he has omitted to mention that in the Fund's official notification of the reasons why no grant could be made it was stated that "no application could be considered until *the regulations of the Revised Uniform System of Hospital Accounts were complied with by* the replacement of the sum of £3620 transferred from the General Fund to the Samaritan Fund."

The Revised Uniform System of Hospital Accounts was adopted in 1906 by the King's Fund, the Hospital Sunday Fund, and the Hospital Saturday Fund, with the concurrence of a representative committee of hospital secretaries in order to enable the yearly financial operations of the various London hospitals to be correctly compared. In fairness both to the hospitals generally and to the subscribing public the King's Fund is bound to see that the system is observed by institutions applying for grants.

The regulation which the Evelina committee have ignored is one not of form but of substance, and the effect on the accounts is important. A sum of £3629, which they have full power to apply to the general purposes of the hospital, particularly to meet a deficit in working, is shown on their balance-sheet under the heading specially reserved for funds which cannot be applied to meet a deficit in working or other general purposes. Similarly the income from this considerable sum is excluded from the income and expenditure account.

If, therefore, these accounts are published as being in accordance with the Revised Uniform System, the balance

sheet is to this extent incorrect and the income and expenditure account is incomplete; if these accounts are not intended to be interpreted according to the Uniform System, then the hospital committee are confessedly not observing the system and are making the hospital ineligible for a grant. There is thus nothing arbitrary in the King's Fund action; it is the automatic result of the free choice by the hospital committee of a course which inevitably produces this dilemma.

The Fund appreciates the courteous terms in which the chairman of the hospital refers to its previous relations with the Fund, but we must point out that the Fund has not interfered with the management of the hospital. The customary stipulation that there should be an inquiry officer can hardly be so described, and if it could it is not the point at issue. Even with regard to the method of publishing the accounts, the Fund is only concerned because the receipt of a grant would imply that the accounts were in the recognised form which enables the financial position and operations of one hospital to be compared with those of other hospitals. Unfortunately the accounts of the Evelina Hospital are not in this form.

We are, Sir, your obedient servants,

SAVILE CROSSLEY, JOHN G. GRIFFITHS, } Honorary Secretaries.

7, Walbrook, London, E.C., Feb. 8th, 1912.

M. BERGSON'S "CREATIVE EVOLUTION."

To the Editor of THE LANCET.

SIR,—Dr. R. F. Licorish has referred to me in his letter in THE LANCET of Feb. 10th on the above work, and I should like to be allowed to add a few observations. M. Bergson is not the first to deal with what I would call the "New Teleology." The first to raise the question of a "determining" power was James Croll in his essay, "What Determines Molecular Motion?—The Fundamental Problem of Life."[1] Darwin left it unanswered, but while his theory of natural selection only *assumes* the possibility of adaptive variations arising, what *causes* them is not suggested, beyond recognising some "direct action" of a changed environment. However, he more than once attributes them to the Creator.[2] Since, however, the existence of adaptive variations is (as he says) a mere "accident,"[3] there being no natural law of cause and effect to account for adaptations or uses, Haeckel was justified in saying, "Darwin gave us the clue to the monistic explanation of organisation,"[4] for any *directed* adaptation is incompatible with a non-directed accident.

As far as I know, the next attempt was in an article of my own on "Directivity" in the *Hibbert Journal*.[5] This word was coined by the eminent chemist, Sir H. H. Church, upwards of half a century ago. He told me that he felt the want of a word to express the fact that as he could "direct" various inorganic substances in his laboratory, with which, by synthetic processes, he could produce certain so-called organic compounds as madder, indigo, certain sugars, urea, &c., what is it in plants and animals which can do the same thing as himself? So he invented the word "directivity."

Directivity, however, covers a much wider ground than organic products, for it applies to the *making of any and every structure* which has some definite purpose in view. In other words, it lies at the basis of evolution. Scientists limit themselves to all phenomena which come under the possibilities of inorganic matter and force. What transcends their activities falls under philosophy and natural theology. Directivity stands on the borderland of both, as being a purely abstract term. But if we ask what or who directs? the only scientific answer is "Life."

The activities of life are observable, just as those of electricity, heat, magnetism, and other forces are; but we know no more of the *nature* of *force* than we do that of *life*. Dr. A. Russel Wallace in his latest work, "The World of Life, a Manifestation of Creative Power, Directive Minds, and Ultimate Purpose," would endeavour to combine "directivity" with, or as an "extension" of, natural selection; but, they are, in fact, mutually exclusive. He is right, however, when he says: "What we must assume is not merely a force, but some agency which can and does apply, direct, guide, and coördinate a great variety of forces ..... so as to build up that infinitely complex machine, the living organism, which is not only self-repairing but self-renewing, self-multiplying, *self-adapting to its ever-changing environment*." These words which I have italicised remind me of the title to one of my volumes of the International Scientific Series—viz., "The Origin of Plant Structures by Self-adaptation to the Environment" (1895). Protoplasm has been called "Purposive Matter" as the cause of adaptations; but matter, being inert and lifeless, is powerless to do anything. It is the life infused in protoplasm which is the active agent throughout all the activities of organic beings. Similarly, the old term "Vital Force" is a misnomer, for no force is alive; but it is *Life* which *directs forces* to *move matter*, so that a purposeful, concrete, organic structure is the result.

The conclusion, therefore, is that directivity resides in life alone, and not in any force or kind of matter itself. Beyond that science cannot advance; but philosophy or natural theology takes up the question and returns to Paley, but with a change of the title. "Argument of Design" becomes "Self-adaptation" by response to changed conditions of the environment; the result is evolution under the directivity of life.

I am, Sir, yours faithfully,

Bournemouth, Feb. 11th, 1912. GEORGE HENSLOW.

[1] Phil. Mag., July, 1872.
[2] See Origin, &c., the last sentence.
[3] An. and Pits., under Dom., ii., p. 431.
[4] Riddle, &c., 264, 5.
[5] Vol. vi., p. 159.

To the Editor of THE LANCET.

SIR,—Dr. R. F. Licorish, in THE LANCET of Feb. 10th, advances what professes to be an interpretration of Bergson's philosophy. His main point is that Bergson agrees with the Neo-Lamarckians in believing in the inheritance of acquired characters. Bergson condemns the Neo-Darwinian theory as being an inadequate explanation of evolution, but the one point on which he agrees with the Neo-Darwinian is that a tendency to the inheritance of acquired characters, if it ever occurs, can occur but rarely. This is one of the most definitely expressed opinions in his "Évolution Créatrice."

I disagree absolutely with Bergson's theory, but this is no reason for allowing a serious misrepresentation of it to pass unnoticed. Fundamentally Bergson's idea of the universe is no more than a modernised version of Paley's "Evidences." It is perfectly obvious that the most modern of the most modern branches of science fail to explain many important phenomena, among them the origin of life and consequently of man's intellectual capacities. Failing the explanation of such phenomena, Bergson, following in the footsteps of many others of at least equal reputation, assumes the existence of a metaphysical power which has directed and continues to direct evolution. Whether, in the absence of physical evidence with regard to the cause of a phenomenon, it is justifiable to assume the existence of a power beyond our understanding and incapable of proof, must remain a matter for each to decide for himself. Personally, I prefer to wait with an open mind in the hope that some further evidence may be forthcoming.

The fact that has struck me most forcibly in Bergson's writings is his total misunderstanding of the theory of evolution by natural selection. His misrepresentation of the belief of the Neo-Darwinian is almost as grotesque as that of the Neo-Lamarckian. And the curious thing is, that one of the most important *raisons d'êtres* of his theory as propounded by himself is that the Neo-Darwinian theory is inadequate.

I am, Sir, yours faithfully,

Glasgow, Feb. 11th, 1912. CHARLES WALKER.

THE FATE OF THE APPENDIX AFTER ABSCESS FORMATION.

To the Editor of THE LANCET.

SIR,—I can fully endorse many of the points which Mr. Dodds-Parker has emphasised in his interesting and valuable contribution to the surgery of the appendix. That it is not only desirable but essential for the safety of the patient to perform a secondary operation for the removal of the appendix after it has been the seat of suppuration there can be no doubt whatever; it is a damaged organ and is therefore liable to be the cause of further trouble. I have often seen it distorted in outline, kinked, or bound down by

adhesions, and I have also seen the distal part almost separated except for a band of cicatricial tissue. At the same time I suppose every surgeon can recall cases in which there has been no more trouble after an appendix abscess after the lapse of years, and where the patient was willing to run the risk rather than undergo a secondary operation; although this may occasionally happen it is well recognised that further trouble is by no means infrequent.

I should also like to refer to the frequency of ventral hernia in children after appendix abscess; I believe it is of more frequent occurrence than in the adult. I quite agree with Mr. Dodds-Parker that the rectus incision is the best for interval operations, but where a ventral hernia or a weak scar exists I excise the scar and utilise the incision for the removal of the appendix and restoration of the abdominal wall.

I have often been struck by the almost complete absence of adhesions after an appendix abscess, nothing but a few web-like threads are sometimes met with except just around the appendix itself, which may be bound down by adhesions to the cæcum and surrounding structures.

I am, Sir, yours faithfully,

Wimpole-street, W., Feb. 14th, 1912. DOUGLAS DREW.

To the Editor of THE LANCET.

SIR,—I was much interested in Mr. A. P. Dodds-Parker's paper, read before the Oxford Medical Society on Dec. 8th, 1911, and published in your columns last week. For the past eight years it has been my practice to remove the appendix after every case of abscess formation as soon as the resulting sinus has healed (if I could obtain permission to do so). My experience with regard to hospital and private patients has been different from Mr. Dodds-Parker; that in the last eight years of hospital practice I have only had one patient who refused to be operated on after the abscess had healed, and, curiously enough, this patient returned one year later under my care with an acute attack of perforative appendicitis, so I was able to remove his appendix at the operation, whereas in private practice I have only been able to get permission in a few cases to remove the appendix after abscess formation, owing in most cases to the popular idea that the appendix is destroyed in such cases. My operative experience in the past eight years of removal of the appendix after abscess formation is 34 cases. In all these cases the appendix has been found and removed, and in all it could be clearly demonstrated that the appendix was not destroyed, the perforation had healed, and that the lumen was patent to a greater or lesser extent. Many contained concretions, and several were examined pathologically, and I firmly believe that every one of these appendices was capable of taking part in another attack of acute appendicitis. It was interesting to note that in two of my cases the appendices had been separated from the cæcum, and that the separated base had got attached to parietal peritoneum in the iliac fossa, the lumen was patent in both, and both contained concretions. And that such a separated appendix was capable of producing an acute attack of appendicitis I was able to prove a few weeks ago when I was asked to operate on a little boy 36 hours after the commencement of an acute attack. This patient had had a severe attack a year and a half previously but was not operated on. I found the appendix lying under the cæcum, its tip was attached to the mesentery of the small intestine, and its base was adherent to a mass of adhesions adherent to the peritoneum in the iliac fossa. Having separated this end I found it was a blind end also, there was a concretion in the middle and a perforation by the side of it. The pelvis was full of muco-pus. I could clearly demonstrate the healed stump of the appendix on the cæcum. Drainage tubes were used, there was no sign of a fæcal fistula, and the wound healed in three weeks.

In conclusion, I should like to add that in THE LANCET of Oct. 1st, 1904, having operated on several of these cases, I published a case under the heading of "An Unusual Case of Suppurative Appendicitis." I published this case chiefly for the reason that Mr. (now Sir) Anthony Bowlby, in a clinical lecture published in THE LANCET of July 9th, 1904, p. 61, on these cases, stated that "suppuration destroyed the appendix." In my remarks on the case that I published I then stated that removal of the appendix after the occurrence of an abscess seems to me to be just as important as removal of the appendix after an attack of non-suppurative appendicitis, and from further experience I am convinced that the appendix should always be removed after abscess formation, but if every case of appendicitis was operated on within the first 48 hours there would be no need to study the condition of the appendix after abscess formation!

I am, Sir, yours faithfully,

H. J. GODWIN,
Hon. Surgeon to the Royal Hampshire County
Winchester, Feb. 12th, 1912. Hospital, Winchester.

DIABETIC GANGRENE.

To the Editor of THE LANCET.

SIR,—Mr. Lockwood, in his clinical lecture on Amputation for Diabetic Gangrene,[1] after a very complimentary reference to my book on "Physiological Principles in Treatment," goes on to say, "And yet it seems strange to me that at the end of that chapter (on Diabetes and Acidosis) he does not say, 'Therefore you must give these patients as much oxygen as you can get them to take.'" He has apparently overlooked the fact that on p. 232 (second edition) I say, "In a condition which ..... we believe to be associated with deficient oxidation, to which the characteristic air-hunger also points, inhalations of oxygen may reasonably be tried." I go on to point out that as in acid intoxications the cell lacks oxygen because a link is missing, not much can be expected from such inhalations. Just in the same way the cell needs dextrose, but in severe diabetes is unable to utilise it. We need nitrogen in our food but cannot use the nitrogen of the air for this purpose. Mr. Lockwood has seen great benefit from oxygen inhalations in his operation cases of diabetic gangrene. I would suggest that this was because of their stimulating effect on the heart, for he notes that before administration there was marked cyanosis and the exuded blood was very dark. Such cyanosis is very unusual in uncomplicated diabetic coma, and even at the necropsy the blood is brighter than usual, presumably because of the defective interchange between the blood and the tissues. I think, therefore, that we are talking of rather different conditions.

I am, Sir, yours faithfully,

Welbeck-street, W. W. LANGDON BROWN.

THE ADMISSION OF VENEREAL CASES TO GENERAL HOSPITALS.

To the Editor of THE LANCET.

SIR,—If your correspondent had read my letter more carefully she would have seen that I expressed no opinion whatever either for or against the admission of venereal cases to general hospitals, and certainly urged no plea, valid or otherwise, against the provision of special accommodation for them. On the contrary, I took their admission for granted, and urged that in addition to the special wards and special training for the medical men in charge of them, advocated by Dr. Douglas White and Lieutenant-Colonel Melville, there should be a special staff of trained women to nurse them. Surely "Charity's mantle" can be worn by experienced women as well as by young girls in training; and have young probationers no "claim on our human sympathies" so that we matrons may protest against their being compulsorily employed in a special class of nursing for which neither their age nor experience fits them?

I am, Sir, yours faithfully,

Feb. 13th, 1912. A HOSPITAL MATRON.

GUARDIANS AND DISSECTION.

To the Editor of THE LANCET.

SIR,—The letter which you published last week from Mr. F. G. Parsons with reference to the refusal by the Southwark board of guardians to permit unclaimed bodies under their control to be used for dissection reveals a very serious state of affairs. All medical men must agree with Mr. Parsons's fair and logical statement of the case for the schools

[1] THE LANCET, Feb. 10th, 1912, p. 349.

of anatomy, and I hope that you, Sir, will endorse his appeal for a campaign of public enlightenment.

I am, Sir, yours faithfully,

Feb. 13th, 1912. M.D.

*** We intend to deal with the subject of Mr. Parsons's letter in an early issue of THE LANCET.—ED. L.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—In a recent article on the National Insurance Act, you remarked that the profession would now welcome the intervention of the great medical corporations as guides to a constructive policy. Nothing, I believe, of more fundamental importance could be said. I am no longer on the Council of the Royal College of Surgeons of England and I have no information as to what course it and the Royal College of Physicians of London are taking. The services which the Colleges, I have no doubt, are prepared to render alike to the public, the Government, and the profession, cannot be obtained from any other source, and they may well be the turning point in the construction of a position which can be accepted as sound and equitable. The vital interests of the community and the profession are beyond doubt very gravely involved as matters stand. Had the whole question been made the subject of a conference between the Government and the two Colleges before the Bill was framed the present deadlock might have been avoided, because the real facts of the case would have been brought to light. I can remember instances when I was on the Council in which the Government consulted the Colleges and in which those bodies were able to render material assistance. I remember, also, the generous terms in which these services were acknowledged by the Government of the day.

I am, Sir, yours faithfully,

Cambridge. HOWARD MARSH.

To the Editor of THE LANCET.

SIR,—Will you allow me to put before you and your readers some arguments why, even though the Insurance Act has been passed, it should not without considerable amendment be put into practice. Without consulting those who have considered, and under all sorts of difficulties and largely at their own expense have dealt with, the sickness in the land, Mr. Lloyd George and the House of Commons settled down to discuss details; they did not trouble to think of the principles which should underlie the Act.

One acquainted with the traditions of Dartmoor is irresistibly reminded of

> "Lidford Law,
> Where in the morn they hang and draw
> And sit in Judgment after."

Though the Act is passed it is not irrevocable, and we medical men have an idea that even the Government, though they forced the Bill through Parliament and have presented it to a country which looks askance at the gift, are now, though late in the day, not disinclined to "sit in judgment after."

In the minds of the advocates of the Act there is a conception of the origin and treatment of disease which is erroneous. It is supposed that if a man or woman is not deterred by pecuniary considerations from consulting a doctor disease will be aborted or arrested; in other words, it is supposed that chronic disease leading to disablement comes from the neglect of some definite condition. It would be easy to demonstrate, whether in the out-patient rooms of any large hospital, or in the dispensary of a doctor in the East of London, or in the consulting-room of the West-End physician, that, except in cases of infection and injury, most of the diseases, preferably described as morbid conditions, which lead to total or partial disablement from work, do not come on suddenly and definitely, but slowly and insidiously, and that they depend on faulty hygiene and faulty habits. The only cure for them is prevention, and the only way to prevent them is through the education of the patient by the doctor.

From personal experience as a general practitioner for 18 years, and subsequent special practice, and from remarks made to me by not a few other doctors, I know that the general practitioner and the hospital physician alike are at present unable to devote the necessary time to the instruction of the patient. And everyone who knows anything of general medical practice is convinced that under the Insurance Act there must be a great augmentation of the work of the already greatly overworked general practitioner. Of course, there are doctors with plenty of spare time, but the public have decided that their services are not worth seeking. Now in the vast majority of cases, what a patient, especially an ignorant and unintelligent patient, asks a doctor is not "What can I do to get quite well?" but "What can you give me to ease my present pain or discomfort?" So that under the new Act, with an increased number of cases to attend to, the doctor will have even less time and opportunity than he has now to teach his patients rationally, and with a view to permanent amelioration; and sickness, leading to disability, will not be lessened.

If you had space I would ask you to print an extract from Sir F. Treves's work, "The Other Side of the Lantern," where he shows that the exceptionally low mortality of the Japanese in their war with Russia was due to their realising that the only proper cure of disease on a large scale is its prevention. What is true of the treatment of disease in an army is true of the treatment of disease in a nation. From this point of view another very serious defect or omission in the Act is the failure to provide for any proper dental service. I think it was Napoleon who said that "an army marches on its belly." What is true of an army of soldiers is true of an army of workers, and it would be right to say that a "nation works on its belly." It would be easy to demonstrate in the out-patient rooms of any hospital that one large factor, possibly the largest factor, in the causation of chronic disease depends on some morbid condition of the alimentary canal; another indication of this fact might be found in the numerous advertisements of pills and patent medicines which disfigure our landscapes and provide a large revenue for our daily and weekly journals. It is becoming more and more recognised that to prevent these conditions a clean mouth and sufficient teeth to masticate properly are essential. At the present time the vast majority of labourers have defective teeth and unclean mouths.

Dr. Harry Campbell writes in the *British Medical Journal* of Jan. 27th, 1912, "I estimate that among the inhabitants of these islands there are upwards of 200,000,000 carious teeth, and as many alveolar abscesses," and as regards the teeth, I do not think his estimate is too large. In 1000 well-to-do patients seen consecutively I found that nearly 40 per cent. had markedly defective teeth, and over 20 per cent. had septic mouths. Seeing that in all these cases food is improperly masticated, and in septic cases is actually poisoned before it is swallowed, until this condition of affairs is altered a really high standard of health is impossible, and to attempt to improve the health of the labouring class to any great extent without providing for adequate dental service is more foolish than to try to make bricks without straw; it is to attempt impossibilities.

There is a third point that I should like to put before your readers. It has been enacted that for some fixed pecuniary consideration the services of a large number of medical men are to be at the call of one-third to one-half of the inhabitants of the British Isles, whenever the latter may choose to demand them. Now it does not seem to have occurred to many that to this idea of compulsory medical service there is a definite corollary—viz., that the patient should be under some compulsion to carry out the doctor's orders. The public must get rid of the idea that when a man is sick his recovery depends on his taking some medicine or other; it depends infinitely more on what he himself does or refrains from doing. "Don't rely on the medicine I prescribe, but do what I tell you," is very often, with intelligent medical men, the parting injunction to their patients. At present, assuming a patient does not follow the doctor's advice and returns time after time with the same complaint he has at any rate to pay the doctor a fee for each unnecessary quarter of an hour he takes up. But in future he can return and waste the doctor's time as often as he likes. In the military and naval services and in the workhouse infirmaries where there is contract medical service, and in the wards of general hospitals, where gratuitous relief is given by many of the ablest medical

men, the patient *has* to do as he is told. At present in club practice the patients are the more intelligent and thrifty of their class, and as it is their own money that is being spent when they are on the sick list there are inducements for them to take the doctor's advice. But in future the less intelligent and less thrifty are to be entitled to free medical treatment, and with no compulsion or even inducement to follow the doctor's advice.

Let me give a case to illustrate my point. The patient is a man, aged 35, a mechanic. During the last five years he has frequently been incapacitated for work owing to what has been called a weak heart. His real trouble is flatulent distension of the stomach, causing pressure on the heart. This is caused: (1) by defective teeth; (2) bolting his food; and (3) unsuitable food. He will not have his teeth attended to, and will not correct his habits. He spends at least £10 a year on doctors and patent medicines. Why should any doctor be compelled—as under the Insurance Act he will be—to attend this man, whether it be at 6*s.* or 10*s.* per annum, if, and as long as, he refuses to take advice and acquire habits which alone could cure him? If this man chooses to play the fool, why should it be at other men's expense? Can anyone imagine a solicitor agreeing—still less can anyone imagine a solicitor being compelled—to give advice at so much a year to all and sundry and to be compelled to devote time to getting them out of difficulties they had got into by not following the first advice he gave them? From Mr. Lloyd George upwards and downwards lawyers would say it would be preposterous to suppose they would undertake such work—at contract rate.

Is it too late to suggest to the members of the Government that now that they realise as they never did before the difficulties that surround national sickness insurance and the *prevention* of national sickness, they should act as statesmen and not as mere politicians? That they should bring in a Bill to suspend the operation of this Act for at least two years (such a Bill would be welcomed by practically all the Members of the House), and that the Commissioners selected to administer the Act, with or without additional members, should be appointed a Commission to inquire into, and report on, the best method of providing for the prevention and treatment of sickness among the working classes, and for the maintenance of the worker during periods of ill-health. If this were done, and took two years to do, the time would be well spent in preparing an edifice to be built on rock in the place of one which has its foundations in the shifting sands and that already is in need of reconstruction before ever it has been put to use.

I am, Sir, yours faithfully,

Llandrindod Wells, Feb. 10th, 1912. R. ACKERLEY.

PS.—The foregoing letter has dealt with illness from the medical side only. It ought to be realised by the Chancellor and the public that hitherto the greater part of the major surgical work for the industrial classes has been done without the least cost to the patient and without the surgeon receiving any remuneration. If an attempt is made to bring the Insurance Act as passed into practice, it is conceivable that surgeons will not continue to do all this gratuitous work; and can any lawyer tell us why they should?

To the Editor of THE LANCET.

SIR,—I agree that an unsuccessful strike would be dreadful, in the loss of prestige. But there is some reason for disagreeing with the conclusion that a successful strike would be deplorable in its public effects, as you suggest in your leading article of Feb. 3rd. There is no necessity to base our refusal to accept the terms of Mr. Lloyd George on pecuniary considerations, but there is every reason for basing such refusal on the ground of belief that the acceptance of the present proposals will be a matter involving great disaster to the cause of progress in the science of medicine and surgery, and consequently a detriment to the public health of this country.

I cannot recollect on any previous occasion when politicians have devised instruments for damaging the interests of medical science that the Royal Colleges of Surgeons and Physicians have taken up a proper position. On this occasion—too tardily, it must be admitted—both of the Royal corporations have made pronouncements, upon which they may be congratulated, and it is much to be desired that these corporations will receive loyal support. I observe that the Chancellor had stated that his Commissioners are, from A to Z, no political partisans. Well, that is possibly true so far as the official parties are concerned, but the question arises as to past and present membership of, say, the Fabian Society or the Social Democratic party. So far as my observation serves me, the principles of State interference with personal freedom are permeating every class in this country, and it is quite patent that the past action of the British Medical Association has been much influenced by the supporters of these principles. The time has indeed now arrived when the enemy should be labelled, and that the two political parties should be frankly—Socialist and Anti-Socialist. As matters now stand, it is always possible to deny political partisanship, because Socialism is not reckoned as being the serious political factor it undoubtedly is.

The conclusion at which I have arrived is that the safest course for the medical profession is to refuse to be drawn into more conferences, official or unofficial, or more political breakfast parties, but to await the time when the Commissioners put their cards on the table, and to recollect that the profession holds an overwhelming hand in trump cards.

I am, Sir, yours faithfully,

Hatfield, Feb. 6th, 1912. LOVELL DRAGE.

To the Editor of THE LANCET.

SIR,—Our system of club practice may not be perfect, but the National Insurance Act seems to me to make it infinitely worse for all except highly paid officials. The present proposals would not affect many of us in the least; hence I write from a purely disinterested point of view. On conversation with a highly trained workman I find that he is perfectly satisfied with the present arrangement, but bitterly resents being put on a level with the thriftless. Whatever solution is reached for the problem, let us secure that our leaders recognise that the *six points* are only the *irreducible minimum*. Like many others, I regard my guarantee to a defence fund solely conditional on the re-constitution of the British Medical Association and their adoption of the six points as their platform.

I am, Sir, yours faithfully,

Feb. 10th, 1912. JOHN CROPPER, M.D. Cantab.

To the Editor of THE LANCET.

SIR,—During the past week many letters, hostile to the medical profession, have appeared in some of the lay newspapers, and their general tenor is to the effect that the medical profession will find that the Act includes their "six points." The following references will show clearly that this is not the case.

1. Under Section 15 (3) the regulations which the Insurance Commissioners are bound to make do no more than authorise the Insurance Committees to require any persons whose incomes exceed a limit to be fixed by the Committees, and to allow any other persons ..... to make their own arrangements, &c. This authorising and this allowing do not involve any compulsion, and *pro tanto* (to say nothing of the composition of the Insurance Committees) the "first point" remains unsatisfied.

2. Section 15 (2) (*c*) allows the insured person to select the doctor, and the doctor to decline the assured person, but this has to be read (1) along with (*d*); and the very probable cases of each one of the doctors declining to attend certain assured persons have still to be provided for; and (2) along with Section 15 (4), which deals with persons (i.e., all present and future members of societies) entitled to receive medical attendance, &c., under any system ..... existing at the time of the passing of the Act; and it says that the regulations shall provide that, in the case of these persons, the "medical attendance, &c., may be treated as ..... and may provide for the Committee contributing," &c. There is no compulsion on the Committee, and, even if there were, the "persons" would be enticed to "select" the "club doctor," to whom this Subsection (4) gives no right to decline to attend the "persons."

3. By Section 14 (1) medical benefits, it is true, are to be administered by and through the Insurance Committees, but seeing that three-fifths of these Committees stand for the insured persons, while only one-fifteenth or one-twelfth or so, according to the size of the Committees, are allowed to the doctors, it is idle to say that the medical benefits are

not administered by the societies, and the same with respect to the maternity benefit, which, in the case of members of a society, is to be administered actually by the society itself.

4 and 5. Section 15 (1) opens the door to "bargaining" (for payments) by doctors with the representatives of the societies, and this is just the indignity to which, I apprehend, the medical profession declines to subject itself. (Fancy solicitors or members of my own profession being called upon to submit to such conditions!) Again, the possible Medical Committees contemplated by Section 62, which are to be "recognised" (!) and "consulted" by the Insurance Committees, are not likely to be able to prevent or remove difficulties, seeing that there is no suggestion that the Insurance Committees are to act upon any advice or recommendation tendered by the Medical Committees.

6. The fact that self-respecting medical bodies have declined, this month, to take part in an *in camerâ* "talk" affords no explanation of the "inadequate" representation of the medical profession on the Commission and on the Insurance Committees which is arranged for in the Act.

Suppose the whole medical profession were to stand aside, how would the Act be "worked"?

I am, Sir, yours faithfully,

Lincoln's Inn, W.C., Feb. 12th, 1912. BERNARD O'CONNOR.

To the Editor of THE LANCET.

SIR,—Will you allow me to ask a few questions concerning the Insurance Act? I believe 6*s.* per head are allotted to medical aid per annum. Now, how much is going to the chemist and how much to the general practitioner? I am told it will not be possible to supply medicine at less than 2*s.* 6*d.* a year, which will only leave the general practitioner 3*s.* 6*d.*

But it will be necessary to have a schedule of drugs to be kept by the dispenser; these drugs must be up to standard. In order to ensure this, periodical testing of the drugs will be required, as in Germany; a staff of analysts must be maintained for the purpose; so that they may be above temptation, they must be well paid. Out of which fund is the money to come?—I am, Sir, yours faithfully,

J. E. FORSTER, M.D. Leipsic.

Brockley-road, S.E., Feb. 6th, 1912.

To the Editor of THE LANCET.

SIR,—I have read with interest the tabulated list of clauses in the Act as affecting the medical profession supplied to you by a correspondent, who, it is stated, has been officially engaged in working upon the Act. The list is published on p. 404 of your issue of Feb. 10th. Why is Section 63 omitted? In none of all the numerous letters appearing in your columns has this section been adequately discussed. Section 63, in my opinion, is one of the fundamental clauses of the Act. In its far-reaching subsections are provisions which will influence for good the homes and environment of generations yet to come.

If Mr. Lloyd George had done nothing more to stamp him as a strong man, Section 63 of this Act would be enough do so. I am, Sir, yours faithfully,

A. B. DUNNE, M.B. Cantab., D.P.H.

Doncaster, Feb. 9th, 1912.

*** Section 63 deals with excessive sickness and inquiries into its cause.—ED. L.

ASSOCIATION FOR PROMOTING THE TRAINING AND SUPPLY OF MIDWIVES.—The eighth annual meeting of this association will be held at Caxton Hall, Westminster, on Thursday, Feb. 29th, at 3.30 P.M. The chair will be taken by Mr. H. Cosmo O. Bonsor, and among the speakers will be Mr. F. E. Fremantle, medical officer of health of Herts.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* The following have been selected for appointment to the staff:—Dr. B. A. Percival, Dr. J. W. Thomson, and Mr. R. Willan (Northern Nigeria); Mr. E. J. J. Quirk (Southern Nigeria); and Dr. E. J. Powell (Sierra Leone). *Other Colonies:* Dr. D. C. Robertson has been selected for appointment as a medical officer (Grade III) in the Federated Malay States.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Annual Report of the Royal Infirmary.

THE report just issued states that steps have been taken to purchase a site in the city for the purposes of a central branch, which, with the buildings to be erected on it, is to cost £45,000. A considerable part of the report deals with the Insurance Act. There seems to be a consensus of opinion that the necessity for hospitals and the work and expenditure thereon will be in no way diminished by the Act. At an interview with hospital authorities the Chancellor of the Exchequer has said that the hospitals of the country were essentially a part of the machinery of civilisation, and he could not imagine any country allowing any single hospital to be closed because it was short of cash. This would seem to imply that if the hospitals are not supported voluntarily they will be supported by taxation, which will probably lead to their ultimately becoming State hospitals. After the removal of the infirmary to its present site the board pointed out that £12,000 in new annual subscriptions would be required to enable the institution to pay its way. The response had been only £3220, while during 1911 there had been a further decrease of £563. The in-patients in 1911 numbered 8631 as compared with 5169 in 1908, while the out-patients reached 63,949, as compared with 46,856 in 1908. The number in all departments of the hospital who received the benefits of the charity during the past year totalled 74,540. There has been a remarkable increase in the number of minor casualties, perhaps due to the operation of the Workmen's Compensation Act. They reached 22,654, as compared with 18,381 in 1910. Legacies to the amount of £10,607 have been received during the past year. A medical expert has been appointed to devote his whole time to research in cancer.

Manchester Royal Eye Hospital: Annual Meeting.

The annual meeting of the trustees of this hospital was held recently. Again a large increase in the activity of the hospital has to be recorded. The out-patients admitted were 25,222 at Oxford-road, an increase of 3155, and 14,037 at St. John-street, an increase of 1262. The number of in-patients at Oxford-road was 2008, and the average duration of their stay was 20·5 days. The number of accident cases treated at the two hospitals was 9350, giving an average of nearly 30 a day. This increase of patients, in and out, necessitates a corresponding increase in expenditure. The ordinary annual expenditure now exceeds the ordinary income by £544. Arrangements have been made with the University of Manchester for the appointment of a laboratory steward to the hospital, who will work under the supervision of the professor of pathology of the University. This arrangement is intended to facilitate the examination of pathological specimens in connexion with diseases of the eye. It is also hoped that great progress may be made in the preparation of sera and vaccines for use in the treatment of such diseases. The professor of pathology (Dr. J. Lorrain Smith) is appointed honorary pathologist to the hospital, and will become a member of the medical board. Founded in 1815, the hospital at that time had an expenditure of £202 for the year. Now this expenditure is £7000. Last year out-patients increased largely and increased subscriptions are urgently needed. A certain amount of the increased work was due to the education authorities of the city having taken up the question of the eyesight of school children. The result has been that the children attend the hospital earlier in their career when any visual defect is found. The only legacy received during the year was one of £1000 from Mr. Armitage. A conditional legacy of £130 was left by Mrs. Rose Hylam, the condition being that within 12 months' time two lady members should be appointed to the board of management. In view of their system of government by a board of management of business men, by a ladies' committee who attended to the interior work of the hospital, and by a medical board who gave advice as to the medical part of the hospital, the board of management unanimously came to the conclusion to make no alteration, in which conclusion it was supported by the ladies' committee.

Cats as Transmitters of Disease Germs.

It is well known that cats may be the means of carrying

various forms of infection. The most recent case is in connexion with the cats in the workhouse of the Bolton guardians, who decided to destroy the cats in the workhouse, and accordingly this has been done. Mr. L. A. Buck, the medical officer of the union, after fully investigating, by means of the X rays, the many cases of ringworm among the child inmates of the cottage homes, came to the conclusion that many of the cases were of animal origin. Only cats that are usefully engaged in the store-rooms have been retained. It is hoped that this measure will practically stamp out the disease.

Manchester and Salford Hospital for Skin Diseases.

The annual report states that there is a debt of £858 due to the bank, and therefore the committee appeals for new and increased subscriptions. The income for the past four years has been far from equal to the expenditure, so that the board has been forced to utilise legacies and donations which might have been otherwise added to the permanent funds. The net result is that the board is faced with an annual deficiency of between £400 and £500. At the meeting of the British Hospitals Association held in Manchester in September the opinion was expressed that in consequence of recent legislation the hospitals would suffer. The report states that the board has already received intimation from several subscribers that although they have not up to now refused to subscribe, yet the working of the National Insurance Act will be carefully considered before they can renew their subscriptions. In 1884, when the hospital first opened its doors, there were 632 patients; last year the number reached 9688. The highest number treated in one day during the past 12 months was 262, and the maximum number of attendances in one week was 1212.

Cruel Sports.

Dean Weldon, preaching at the Manchester Cathedral on Jan. 31st, dealt with the relation of man to the lower animals. Man, he said, possessed the express right of taking the lives of animals for his own support and even for his own pleasure. There was no doubt, too, that if it lay within man's prerogative to take the lives of animals, he could not do it without inflicting a certain amount of pain. It was, however, an absolute duty to reduce that pain to a minimum. Man was bound to see that in slaughter-houses the inevitable death of the animal was made as painless as possible. As to sport, a glance over Christian history showed that one cruel sport after another had been condemned at the bar of public opinion. It was at least probable that as civilisation and sympathy advanced, humane, cultured, Christian gentlemen would find their pleasure—their sport, if he might so call it—elsewhere than in the taking of animal life. But he did not wish to condemn sport. With reference to vivisection, the Dean observed that after all every new discovery must be tried on somebody, either man or animal, and if the life of a human being was more precious than the life of an animal it was difficult to sanction sport and condemn vivisection. He held the view strongly that whenever living animals were subjected to experiment in the interests of progressive science it should be done under anæsthesia.

Formal Opening of St. Mary's Hospital for Women and Children.

The new St. Mary's Hospital for Women and Children in Oxford-road was formally opened by the Earl of Derby, the President, on Feb. 9th. The hospital was built and equipped by Mr. E. Reid, acting as the sole surviving trustee of the late Mr. Manassah Gledhill. After completion it remained unused for some months as the necessary money for its upkeep was not available. A year ago the hospital was hopelessly insolvent, but as the result of an urgent appeal to the public to remove this reproach the trustees raised £40,000, and increased their subscription list by £1600 a year. A further £5000 a year, however, is still required to carry on the hospital as it ought to be carried on. The working women of the city have helped by their contributions in pence and halfpence, aggregating a sum of £1000. The hospital contains 111 beds, 86 for women and 25 for children, and already the accommodation is in full use. St. Mary's Hospital has existed for 122 years. During the first year 400 maternity patients were treated, including 72 in-patients. Last year 4500 maternity cases were treated, 800 operations were performed, and 11,300 out-patients received attention. Lord Derby promised to try to obtain Royal recognition for the hospital.

Feb. 13th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool University: Degree in Hygiene.

THE Council of the University, on the recommendation of the Senate and Medical Faculty, has decided to provide courses of study leading to a new degree, that of Master of Hygiene. The degree will be open only to graduates in medicine, and will be conferred after examination and a course of study extending over a considerable period. It is intended that the degree shall be of a high standard, and it is hoped that graduates desiring the highest qualifications in the branches of their subject affecting public health will avail themselves of the opportunity of working for this degree. The University will still continue to grant the diploma in Public Health.

Annual Dinner of the Medical Students of Liverpool University.

The annual dinner of the medical students of the University of Liverpool was held on Jan. 20th, at the Exchange Station Hotel, under the presidency of Dr. T. R. Bradshaw, the senior physician to the Liverpool Royal Infirmary. Over 100 were present and the speakers included the chairman, Professor A. M. Paterson, Dr. O. T. Williams, and the representatives from the Leeds University. The meeting was a great success.

Chester Infirmary.

The annual meeting of the governors of the Chester Infirmary was held on Jan. 30th, under the chairmanship of the Mayor of Chester. The report of the board of management, the 157th since the establishment of the institution, showed that the number of patients treated during the year 1911 was 9131, as compared with 9655 in 1910. The average cost per occupied bed was £62 6*s.* 1*d.* The total receipts amounted to £6094 10*s.* The total ordinary expenditure amounted to £7097. The board recommended the appointment of an honorary assistant ophthalmic surgeon. Dr. J. R. Thompson, in seconding the adoption of the report, expressed the fear of the managers, in common with that of other hospital managers, as to the effect on the resources of the hospital of the National Insurance Act. It was not for him to criticise the Act. The Act would not come into operation until July, and he was told by those who were capable of expressing an opinion that it was quite possible that, in response to pressure, the time for the Act to come into operation might be postponed, which would give further opportunity to consider matters. There was no doubt, however, that whatever happened the hospitals of the country must be preserved in their absolute entirety. If the Act affected them in the matter of patients it would be out-patients probably, but the beds would be quite as much required in the future as they had been in the past. He understood the Act provided that the Commissioners would be authorised to contribute liberally to hospitals.

The Royal Albert Institution.

Arrangements have been made for the annual election of patients in connexion with the Royal Albert Institution, to be held at Barrow-in-Furness during May next, and the friends of eligible candidates should at once write to the secretary (Mr. S. Keir, the Royal Albert Institution, Lancaster), for forms, as the list of candidates will shortly be closed. Seventy names have already been accepted by the committee, including 29 from Lancashire, 20 from Yorkshire, 5 from Cheshire, 2 from Westmoreland, 3 from Cumberland, 8 from Durham, and 3 from Northumberland. The institution was founded and is supported by voluntary contributions, and for nearly 50 years past has been successfully engaged in caring for and training the improvable feeble-minded of the seven northern counties of England, 84 per cent. of the inmates having been materially improved, in many cases to such an extent as to be rendered capable of earning their own livelihood. The committee are proceeding with a farm colony for 40 additional inmates, towards the cost of which donations amounting to over £1600 have been received, and others colonies of a similar kind will be formed if there be a sufficiently generous response to the committee's appeal for £12,000.

Feb. 12th.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol: Markham Skerritt Memorial.

THE late Dr. E. Markham Skerritt did much for the Bristol Medical School. He was professor of medicine, and for many years was dean of the Faculty of Medicine. Accordingly it was thought proper to commemorate his services to the cause of medical education by some definite University memorial. At first it seemed possible to establish a chair of anatomy in his name, but owing to a series of unfortunate mischances the project had to be abandoned; and the committee appointed to undertake the collection of subscriptions has just handed to the University a sum of £337 for the purpose of establishing a biennial prize for original work in medical science. This is an altogether admirable way of perpetuating Dr. Markham Skerritt's memory, as the promotion of original research in medicine was a matter in which he took much interest. Moreover, it is sadly in need of encouragement in Bristol, even more perhaps than in most British centres of medical education.

Bristol Dispensary for the Prevention of Consumption.

A letter has been sent to medical men and others by the committee of this institution, stating that it will be open for patients on Feb. 19th at 2 P.M. Female patients and children will be seen on Mondays and Thursdays from 2 to 5, and men on Fridays from 2 to 5, and also by arrangement on Tuesdays from 7 to 9. No patient will be seen by the medical officer, Mr. C. J. Campbell Faill, without a card or letter of recommendation from his or her medical man or from the medical officer of health. Medical men may, if they wish, enlist the help of the dispensary by writing "dispensary" on the form of notification of tuberculosis under the Infectious Diseases Acts. Patients so recommended will be examined and treated if suffering from tuberculosis, and their homes will be visited and "contacts" examined. Visitors will be received on Wednesdays at 3.30, when the medical officer will explain the working of the institution, which is supported by voluntary contributions. In a footnote to this letter, Dr. G. Parker, who is a member of the committee and also chairman of the Bristol Division of the British Medical Association, says that after the resolution passed by the Bristol Division the institution feels that it can rely on the active support and hearty coöperation of the medical men of the city. Mr. Faill, the newly appointed medical officer, has worked under Dr. R. W. Philip in Edinburgh, and also at the Paddington Dispensary.

Association of Alumni of Bristol University.

This association held a most interesting meeting at the University recently, an exhibition of memorials of eminent Bristolians lent by various collectors being the principal feature. Among these were various manuscripts and autographs of Southey, Coleridge, Longfellow, Richard Hakluyt, Sydney Smith, Hannah More, and others. The object of the association—to bring together past graduates, and thus to maintain their connexion with the University—was fully achieved by this meeting, as it attracted a large company of members.

The Bristol Royal Infirmary.

The annual meeting of the subscribers to the Bristol Royal Infirmary was held on Feb. 12th under the presidency of Sir George White. The medical report stated that during 1911 the out-patients numbered 56,440, and 4712 in-patients were admitted. The financial statement showed the receipts amounted to £17,182, and the expenditure was £18 586. The total deficit against the institution is now £5391. The chairman stated that the Bristol Royal Infirmary King Edward VII. Memorial will be ready in a few months for the reception of 180 additional patients.

The Royal United Hospital, Bath.

The annual meeting of the subscribers of the Royal United Hospital, Bath, was held on Jan. 31st, under the presidency of the mayor. The medical report stated that during 1911 the in-patients were 1590 and the out-patients 15,943, both figures being in excess of the previous year. In addition, 229 patients were treated at their own homes. The financial statement showed that the expenditure was £7120, and a favourable balance of £4 remained at the close of the year. This was due to the fact that legacies, unless especially bequeathed, were treated as income; if this had not been done there would have been an unfavourable balance of £750. The chairman, Mr. Stanley Wills, made a strong appeal for more financial help. He referred to the inadequate support given to the charity, and added that the institution was being worked as economically as was consistent with efficiency.

Bristol Medical Dramatic Club.

The members of the Bristol Medical Dramatic Club are giving performances of the comedy, *Dr. Wake's Patient*, by W. Gayer MacKay and Robert Ord, at All Saints' Hall, Clifton, from Feb. 13th to 17th inclusive. This is the thirty-fourth annual performance of the club, and the profits will be given to the Bristol Orthopædic Hospital.

The Clifton Dispensary.

The annual meeting of the subscribers of the Clifton Dispensary was held on Feb. 6th. The ninety-ninth annual report stated that the financial position was satisfactory, and a favourable balance of £72 remained at the close of the year. The medical report showed that 2617 medical, 313 surgical, and 71 midwifery cases had been treated during 1911. The committee, in appealing for increased support, refer to the fact that the dispensary has now entered upon the hundredth year of its work.

The Somerset Education Committee and Children's Teeth.

At the last meeting of the Somerset Education Committee it was decided, upon the recommendation of the health committee, that the children in the elementary schools should have their teeth examined and treated by a whole-time dental surgeon, at an annual cost of about £400 per annum, on condition that half the cost be defrayed by the parents and private subscriptions, the other half to come from the public funds.

Death of Mr. J. Frederick Parsons, M.R.C.S. Eng., L.S.A.

Mr. J. Frederick Parsons, honorary surgeon to the Frome (Somerset) Cottage Hospital, died at his residence, "Garston," Frome, Somerset, on Feb. 9th. The deceased received his medical education at St. Mary's Hospital, London, and took the M.R.C.S. and L.S.A. qualifications in 1871. After holding the post of resident obstetric officer at St. Mary's Hospital, Mr. Parsons went into partnership with his father, the late Mr. Joshua Parsons, at Frome, and eventually succeeded to his practice. Mr. Parsons was medical officer of health for the Frome urban district and also certifying factory surgeon. He was highly esteemed and respected in Frome and the neighbourhood. His brothers include Mr. Alfred Parsons, the famous painter, and Dr. H. Franklin Parsons, the well-known epidemiologist, formerly assistant medical officer of the Local Government Board.

Feb. 13th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Inspection of School Children in Aberdeen.

Dr. G. Rose, medical officer of the Aberdeen School Board, has issued his annual report, in which he states that the total number of inspections made during the year was 16,418, in addition to the cases sent in by teachers for advice and those examined by the nurses for cleanliness. Altogether a number equalling two-thirds of the school population passed through the hands of the medical staff during the year. Dr. Rose remarks that the routine of school work is undoubtedly disturbed by the details of medical inspection, but that any inconvenience and additional work is most cheerfully borne and undertaken, most of the teaching staff being strongly in sympathy with school inspection, the good results of which are already showing themselves. The staff consists of two medical officers, three nurses, one typist, and one inspector for dealing with verminous cases; the last-named was added this year. Dr. Rose reports on the cleaning regulations and ventilation (the plenum system in most of the schools) favourably, but suggests that the experiment of shutting off the gymnasia from the general system of ventilation should be made in some schools. Dr. Rose remarks that "Physical exercise can be carried out even in a low temperature. It would be better that the

gymnasium should not be connected with the main school building. A building cheaply got up, well ventilated by cross ventilation, and sufficient to afford shelter from the storm is all that is required, and is infinitely better than one where the ventilation is defective, and which forms an entrance hall to the classrooms." Regarding the heating, Dr. Rose reports that considerable variations were found in the temperatures of the different schools. In a few the temperature was too high. He recommends that the temperature of each classroom should be taken three times during each attendance, and entered on a chart placed beside the thermometer. When the chart showed a temperature above or below a certain standard it could be submitted to the medical officer, who could thus exercise a check on the janitor and teacher. Footwear and clothing showed a marked improvement over last year. The heights and weights of children between 5–6 and 13–14, who were all weighed and measured, were of the average for Aberdeen, though differing slightly from the standard laid down by the Anthropometric Society. In conclusion, Dr. Rose remarks that "while some medical men desire as complete an examination of each child as in life insurance, this is an impossibility without trebling the staff, and were it done it would be of doubtful utility. There are so many known and easily recognisable defects to remedy that there is no need to dream of detecting every incipient case of disease and trying to prevent its development. Such dreaming will remain a dream. That already two out of every three children who were examined have had their defects remedied or seen to leads to the belief that in the early future only a small percentage of those suffering will remain uncared for."

Notification of Measles in Aberdeen.

The town council of Aberdeen is to have under consideration the desirability of including measles among the notifiable infectious diseases. The Medico-Chirurgical Society has communicated with the town council regarding the matter, the society having at a recent meeting discussed the very large death-rate among the children of the city during the recent measles epidemic and passed a resolution to the effect that, in the society's opinion, and especially in view of the circular recently issued by the medical officer of health, all cases of measles in children under three years of age should be notified, and that the usual fee should be paid for such notification.

Feb. 13th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dinner of the Royal College of Surgeons in Ireland.

THE annual Charter Day dinner of the Royal College of Surgeons was held on Feb. 10th in the Hall of the College, the President, Mr. Robert H. Woods, being in the chair. His Excellency the Lord Lieutenant was present. The President spoke of the lack of response on behalf of the Treasury when asked for help for the school of the College. In spite, however, of all lack of public help the school never had more pupils than at present. Mr. O'Connor, Solicitor-General, spoke of the place occupied by the College in the public life of the country; and Dr. D. J. Coffey, President of University College, made a graceful speech, referring to the relations between the College and the medical profession. In the course of the evening a handsome presentation was made to the President and Mrs. Woods in recognition of their services to the College. At the request of Sir Charles Cameron the Lord Lieutenant handed to the President a massive silver cup and to Mrs. Woods a necklet and pendant.

"Phantasms of Life."

Under the above title Dr. Walter J. Smith gave an interesting lecture last week before the Royal Dublin Society dealing with those curious crystalline forms which simulate living beings. While holding strongly to the view that physico-chemical processes did not explain the phenomena of life, Dr. Smith pointed out that there was no known definition of life which excludes certain crystalline formations. The most distinctive functions of life were nutrition, organisation, and growth, and all of these could be exhibited under certain circumstances by crystals. Similarly, they exhibited reactions to stimuli of intrinsic and extrinsic origin. Some of the phenomena exhibited by "flowing crystals" closely mimicked the forms and movements of living creatures, such as bacteria.

Tyrone and Fermanagh Asylum.

It was reported on Feb. 8th that since the last meeting one female patient had died of enteric fever, and that all the other typhoid patients were now convalescent. The resident medical officer reported that while the sewerage system was condemned he could not regard the asylum as being in a satisfactory state. He asked that the permanent staff should be increased, and the committee granted temporarily two nurses and two attendants.

Monaghan and Cavan Asylum.

At a meeting of the committee of management of this asylum, held on Feb. 8th, a resolution was passed protesting against the adjournment of the inquiry into the auxiliary asylum question, which had arisen through the application of the Cavan county council, and by which the accommodation question had been delayed.

High Death-rate in Belfast.

The death-rate for the week ending Feb. 3rd was from all causes 31·1, and from the principal zymotic diseases 2·5. A great deal of bronchitis, pneumonia, and influenza prevails in Belfast at present.

The National Insurance Act.

The National Insurance Act is becoming more unpopular in Ireland, and especially among that moderate sensible class who belong to none of the political parties, and who are dissatisfied with what they remain convinced, all denial notwithstanding, is the political character of the appointments already made under the Act. They fear that the same principle will continue to prevail, as there is such a rush of candidates for further posts, who are basing their claims solely on political services, without any examination check, as in the Civil Service. Further, it is becoming more and more evident that the approved societies under the Act will be sectarian. Last week at a meeting of the Ancient Order of Hibernians (which is entirely political and sectarian, and of which Mr. J. Devlin is the head) it was decided to ask recognition for that society under the Insurance Act; and other religious bodies of various denominations are taking action each to form its own society. The natural result may be that everything will tend to become more and more sectarian, and that Protestant and Catholic will soon cease to work on any common platform in Ireland, while all voluntary philanthropic efforts will cease.

The Irish Milk Commission.

The Irish Milk Commission began its sittings in the City Hall, Belfast, on Tuesday, Feb. 13th. It is to last four days.

The Chancellor's Speech.

The attack made by Mr. Lloyd George on the medical profession in his speech in London on Feb. 12th has had the effect of stiffening the medical profession in Ireland against the Insurance Act.

Feb. 13th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Superior Commission on Medical Instruction.

THE President of the Republic, on the report of the Minister of Public Instruction and Fine Arts, has established at the Ministry of Instruction under the presidency of the Minister a Superior Commission on Medical Instruction. The Commission is to report on all the questions submitted to it by the Minister. It will meet twice a year, but can be convened in extraordinary session. All the members have the right to submit to the Minister proposals or representations on any questions within the competence of the Commission, and these are committed to a subcommittee which examines them and, after hearing their authors, should they so desire, advises the Minister, who in turn endorses their report or remits it for the consideration of the Commission as a whole. The 76 members of the Commission were named at the same time by the Minister of Instruction, and include, among others, the vice-rector of the Academy of Medicine,

the Director of Higher Instruction, the representatives of the Faculties of Medicine on the Superior Council of Public Instruction, the doyens of the Faculties of Medicine and of the mixed Faculties of Medicine and Pharmacy, the president and the permanent secretary of the Academy of Medicine, the Director of Assistance and Public Hygiene at the Ministry of the Interior, the Director-General of Public Assistance in Paris, and the Director of the Military Sanitary Service at the Academy of Val-de-Grâce.

Injections of Serum in Meningitis.

At the Academy of Medicine on Jan. 30th M. Netter presented a report on the work of M. Cantas, in which was demonstrated the cause of certain failures in the use of anti-meningococcic serum in the treatment of cerebro-spinal meningitis. In certain cases closures of the spinal canal are found, which prevent the spread of the liquid throughout the whole extent of the cord. In such cases an injection must be made higher up, even if necessary as high as the cervical vertebræ, to obtain the desired success.

Education of the Vital Processes.

The vital functions of nutrition occupied the attention of the Société de Médecine de Paris during the January session. M. Maurice Faure stated that so far back as 1903 he had established the fact that functions such as respiration, micturition, defæcation, and vomiting, were not exempt from the laws of education. These functions were for the most part dependent on the muscles of the thorax, the abdomen, and the perineum, muscles which were perfectly susceptible to education. Even the smooth (*lisses*) muscles of the viscera were not so entirely refractory to education as was commonly supposed, and in the subjects of contractures, ataxy, and atony, useful effects could be attained by appropriate education. M. Laquerrière and M. Nuytten then presented the results obtained by them up to date with the electrical gymnastic method of Professor Bergonié. This method consists in electrically inducing muscular contractions of the whole body, and, it is claimed, has none of the disadvantages of voluntary exercise. It is indicated in various troubles of nutrition, and especially in obesity and in those cases in which voluntary exercise is difficult or impossible. It can be applied also in the case of the asthenic and the vitally depressed. M. Heckel said that he was not absolutely convinced of the efficacy of this treatment; he thought the exercise should be neuro-muscular, and not simply peripheral in the muscular fibre itself. The neuron allowed the functional nervous adaptation so indispensable to the obese and to those of lowered nutrition, who had always more or less nervous insufficiency. Further, it was to be feared that this mode of incomplete exercise would not obviate relapses.

Gift to the French Medical Faculty at Beyrouth.

At the last meeting of the Academy of Sciences Prince Roland Bonaparte informed the President that he had placed at the disposal of the Academy the sum of 35,000 francs for the use of the French Medical Faculty of Beyrouth.

Medical Expert Decisions.

In order to be recognised in a French court as a medical expert, save in exceptional cases, it is requisite to have official recognition by the Courts of Appeal, which every year, assembled in council, inscribe on the lists submitted by the courts of first instance the names of the doctors of medicine on whom they confer office. But it too often happens that justices of the peace, in the case of industrial accidents, select an outsider whom they favour in place of choosing a medical expert from the official list. In such cases the "expert" decision is worthless, and a judgment based on it must be rejected, now that the Fourth Chamber of the Tribunal has declared void the expert decision of an unofficial expert nominated merely by a justice of the peace.

Feb. 12th.

LITERARY INTELLIGENCE. — Messrs. Witherby and Co. are shortly publishing for Mr. P. H. Bahr two important reports, the one on "Filariasis and Elephantiasis in Fiji," and the other on "Dysentery in Fiji." The reports embody the results of a year's study of these subjects in Fiji, and are to be illustrated with plates in colour and monochrone, and charts.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Turkish Medical Mission to Tripoli.

THE arrest by the Italians of the 29 members of the Ottoman Red Crescent Association on the French liner *Manouba* has raised a most vigorous protest from many quarters. I hear, however, from a reliable source that some of those arrested did not belong to the Association, but were Turkish officers in disguise. The mistake of the Italians was to detain all the 29 members after the identity of over 20 had been fully established. Dr. Kerim Sabati, a member of the Red Crescent Association, now on duty in Tripoli, had telegraphed to Constantinople for reinforcement for the ambulance staff, upon which the above 29 men were despatched. The Turks thought, however, that they could combine what ought to have been purely medical work with political designs. Dr. Kerim now telegraphs that the detention of the medical mission is causing serious prejudice to the efforts of the ambulance corps. The latter conducts its work in the field for the benefit of Turks and Italians alike. Happily, the French-Italian conflict which had arisen over this matter has now been satisfactorily settled. A local newspaper says that the three doctors, who had been submitted to a professional test by French medical authorities, were completely successful. The German Red Cross Mission sent to Tripoli has reached its destination without any hindrance, and is now doing excellent service at the seat of war together with other and various medical agencies.

Cholera Epidemic in Epirus.

Official reports from Epirus speak of a very serious outbreak of the cholera epidemic in various places of that province. Especially distressing is the condition in several garrisons because of the lack of proper treatment and the scarcity of medical men. A veritable panic has taken possession of the inhabitants, many of whom are leaving their homes for Greek territory. Here they are arrested by the authorities and confined in hospitals and lazarets for supervision. The panic created among the soldiers is so great that many of them have deserted and fled in all directions. Last week 17 cases of cholera occurred in the garrison of Yanina, and the Ottoman Government has ordered the establishment of a lazaret near by. The Greek Government is also doing its best to stem the propagation of the epidemic and to reinforce the frontier guards.

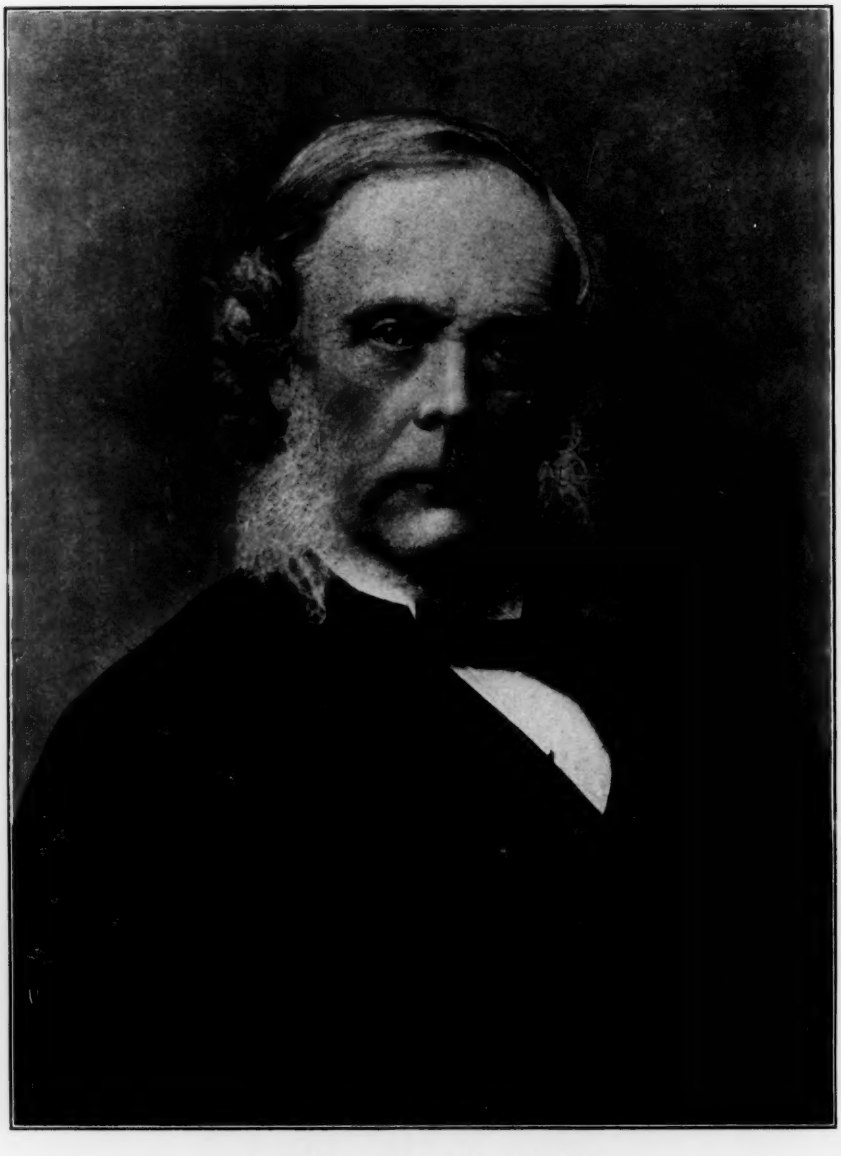
The Earthquake on the Ionian Islands.

The details that have reached Constantinople of the last earthquake on the Ionian Islands are very distressing indeed. The catastrophe began at midnight. The shock was of long duration, according to some reports about three minutes. It was followed by several other shocks. The places that suffered most were Zante and Cephalonia, which are supposed to have been the centres of the earthquake. The inhabitants remained in the fields for days. Almost all the public buildings and the majority of private houses have been destroyed at Zante. Human victims were, happily, few in this town. At Cephalonia, however, more than 30 dead bodies were found among the débris of buildings. The shocks extended to the western coast of the Peloponnesus, but without causing much damage. Assistance, medical and otherwise, has been sent to all the places of the visitation. The Greek Government has appointed a Special Commission to collect subscriptions for the sufferers. Private initiative for relief work is very active both at Constantinople and Athens.

Cholera in Aleppo.

News has just arrived of a cholera epidemic at Aleppo. It is rapidly spreading through the whole city. According to official reports about a dozen deaths occur daily, but there, as everywhere in Turkey, the relatives of the patients are attempting to mystify the medical authorities and to hide cholera cases. This is always one of the chief causes of propagation of our epidemics. It is believed that the disease has been brought by pilgrims. The municipal authorities are said to be indifferent, neglecting to take preventive measures. The streets remain dirty, and no disinfection whatever is carried out. There is also a lack of medical men, a usual evil in the provinces of Asia Minor.

Feb. 6th.



JOSEPH, BARON LISTER

Member of the Order of Merit
Fellow and Sometime President of the Royal Society
Knight Grand Cross of the Danish Order of the Danebrog
Knight of the Prussian Order pour la Mérite
Associé Étranger de l'Institut de France
Fellow of the Royal College of Surgeons of England
&c. &c.

Obituary.

LORD LISTER, O.M.,

SERJEANT-SURGEON TO KING EDWARD VII.; LATE REGIUS PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH AND OF SURGERY IN THE UNIVERSITY OF GLASGOW; EMERITUS PROFESSOR OF CLINICAL SURGERY, KING'S COLLEGE, LONDON.

LORD LISTER, whose lamented death occurred early on Saturday morning last, Feb. 10th, was one of the most remarkable men who have ever adorned the medical profession. No previous physician or surgeon has ever impressed his day and generation in an equal degree, and he has now gone to his rest full of years and honours, leaving an imperishable name. He will have a permanent place in history as the maker of discoveries which have revolutionised surgery and have thereby conferred inestimable benefits on suffering humanity. In the investigations which led to such fruitful results he had to rely altogether on the promptings of his own genius, unaided by suggestions from any source except a memoir communicated to the French Academy of Sciences on the preservation of watery solutions of decomposable substances. To Louis Pasteur, the author of this memoir, who, however, was not a medical man, Lord Lister at all times most freely acknowledged his indebtedness. Following up the line of thought thus initiated, he showed the conditions which made the difference between success and failure in the majority of surgical operations, and by successive steps he improved the methods of carrying into practical effect the principles then for the first time laid down, until it was everywhere recognised that in the healing art a new era had begun. Lord Lister, who died at Walmer in his 85th year from pneumonia, was ill only four days and the end came without pain.

Lord Lister in Edinburgh days.
(*Reproduced from the frontispiece of the first volume of the Collected Papers.*)

It was a judicious course that on being raised to the peerage Lord Lister did not adopt a territorial title, but retained his family name, which had for many years been so well known to the medical and scientific world. His father's parents were John Lister of Stoke Newington, London, a wine merchant, and his wife Mary Jackson, both of them being members of the religious body known as the Society of Friends. Mr. John Lister died at the unusually advanced age of 98 years. Their son, Joseph Jackson Lister, born in London in 1786, although following his father's business, possessed great scientific aptitude, which enabled him to become a distinguished microscopist and a Fellow of the Royal Society of London. His improvements in the design of achromatic object-glasses for the microscope were communicated to the Royal Society in 1830; they were published in the *Philosophical Transactions*, and have been described by most of the authors who deal with the optical theory of the instrument as well as by Lord Lister himself, in the account of his father's life and work which he wrote for the "Dictionary of National Biography"; this memoir will be found in Vol. XXXIII. of that work, published in 1893. In 1818 Mr. Joseph Jackson Lister married Isabella, daughter of Anthony Harris, of Maryport, Cumberland; they had seven children, four sons and three daughters, their son Joseph Lister, for whom so great a future was in store, being born at Upton, in Essex, on April 5th, 1827. Mr. Joseph Jackson Lister lost his wife in 1864 and died at Upton House, Essex, on Oct. 24th, 1869, in the eighty-fourth year of his age.

The district which bears the names of Upton and Upton Park has undergone many changes since that time. Being in the western portion of the county of Essex, between Stratford and Barking, it lies a short way outside the County of London, but is nevertheless included in the Eastern metropolitan postal district. It is now a populous locality partly within the borough of West Ham. Lord Lister's father's house is still in existence; it stands in Upton-lane, Forest Gate, and is now the vicarage of St. Peter's Church, which adjoins it.

Lister's school education was received at Tottenham, after which he spent several years as a student of arts and medicine at University College, London, graduating in the University of London as B.A. in 1847 and M.B. in 1852; in December of the latter year he was also admitted a Fellow of the Royal College of Surgeons of England. During the first 13 or 14 years of his professional career he was busily engaged in histological and physiological work. His first published paper appeared in the *Quarterly Journal of Microscopical Science*, and was entitled "Observations on the Contractile Tissue of the Iris. By Joseph Lister, Esq., B.A." The principal specimen examined was obtained from a patient operated on by Mr. Wharton Jones at University College Hospital, in August, 1852; the volume containing the article was dated 1853, but the paper, which is illustrated with seven camera-lucida drawings, was no doubt written in the previous year, apparently before the author had taken his medical degree. The same volume contains a second paper by him, entitled "Observations on the Muscular Tissue of the Skin. By Joseph Lister, M.B. Lond., F.R.C.S."; it was dated June 1st, 1853, and was written as from University College Hospital, where he held the successive appointments of dresser and house surgeon under Mr. (afterwards Sir) J. E. Erichsen.

His connexion with Edinburgh began immediately afterwards. Mr. James Syme, who had been for nearly 20 years professor of clinical surgery in the University of Edinburgh, had long been recognised as one of the most eminent surgeons in the kingdom; he was, moreover, well known at University College Hospital, where he had held a temporary appointment as surgeon for

a few months in 1848. In order to gain experience under so distinguished an authority Lister proceeded to Edinburgh in 1853, and soon entered on the position of house surgeon to Mr. Syme's wards in the old Royal Infirmary, since replaced by a new building on a different site. Syme was by nature outspoken and tenacious of his opinions—so much so, indeed, that sharp encounters had taken place on various occasions between him and some of his professorial colleagues; Lister, however, held him in high esteem both as an operator and as a clinical teacher, and between them there was a warm friendship only broken by Syme's death in 1870. On April 23rd, 1856, at Mill Bank House, not far from Edinburgh, Lister married Syme's eldest daughter Agnes. The union was a long-continued and most happy one, although not blessed with offspring. Lady Lister (as she afterwards became in consequence of her husband's baronetcy) died from acute pneumonia in April, 1893, while travelling with him in Italy.

Until 1855 he had served in the Edinburgh Royal Infirmary as Syme's house surgeon, but in this year he received the appointment of assistant surgeon, retaining, moreover, his connexion with Syme's wards. He also then began to deliver lectures on surgery in the Edinburgh extra-mural school, a circumstance which led to his name appearing in THE LANCET of Sept. 23rd, 1855, p. 267, as one of the lecturers for the session 1855–56. His home was No. 11, Rutland-street, Edinburgh. Some anecdotes relative to this period of his career, as well as a contemporary portrait of him, will be found in "Looking Back," a profusely illustrated work which appeared in 1907, and consists of a collection of reminiscences connected with the University of Edinburgh. During the seven years of his first stay in Edinburgh he wrote several important articles on histological and physiological subjects. In the *Edinburgh Medical Journal* he published two papers on the Coagulation of the Blood. The *Quarterly Journal of Microscopical Science* for 1858 contained a paper on the Minute Structure of Involuntary Muscular Fibre, read by him before the Royal Society of Edinburgh in December, 1856, and in the same journal there appeared in 1860 a paper on the Structure of Nerve Fibres, written jointly by Lister and his friend Mr. (afterwards Sir) William Turner, who subsequently became President of the General Medical Council. Several other original observations of his were accepted about this time by the Royal Society of London and the British Association for the Advancement of Science; they will be described separately in a later portion of the present notice.

Dr. James Adair Lawrie, professor of surgery in the University of Glasgow, died in the end of 1859, and in February, 1860, Lister was appointed his successor; the post of assistant surgeon to the Edinburgh Royal Infirmary which thereby became vacant was given to Dr. Patrick Heron Watson. Here it may be remarked that during the whole period of Lister's professorship in Glasgow the University occupied the venerable edifice which had stood for centuries on the east side of the High-street; the Royal Infirmary, where clinical instruction was given, was about half a mile away. It was not until 1870, or a little later, that the present University and the Western Infirmary, adjoining one another on Gilmorehill, in the west of the city, were opened, and by that time Lister had become a professor in the University of Edinburgh. While he was in Glasgow the visiting staff of the Royal Infirmary, not including the out-patient department, consisted of four physicians, four surgeons, and two physicians for the infectious wards. The infirmary, which was founded in 1791, has of late years undergone reconstruction without change of site. It was in no way connected with or dependent on the University, except that the professor of practice of medicine (at that time William Gairdner) was *ex officio* one of the physicians. The admission of students for the purpose of clinical instruction was a privilege granted by the directors, the professor of surgery in the university had to depend on their goodwill for election as a surgeon in the institution, and it was only in the second year of Lister's professorship—namely, in 1861—that he was appointed one of the surgeons to the infirmary and given charge of the wards in which a few years later he accomplished work of such tremendous results.

On June 11th, 1863, he delivered before the Royal Society the Croonian lecture on the Coagulation of the Blood. It was published in THE LANCET of August 8th and 15th in the same year. With the exception of articles on Amputation and Anæsthetics in Vol. III. of the first edition of Timothy Holmes's "System of Surgery," Lister's first published memoir on a purely surgical subject consisted of a series of three papers which appeared in our columns in March and April, 1865, describing his method of excision of the wrist-joint for caries. The cases—15 in number—were under his care in the Glasgow Royal Infirmary during 1863 and 1864, and very full details of the method of operating were given. Carbolic acid was used as a caustic in one of these cases, but there is not in the three papers any reference to the great discovery of which he was then laying the foundations, and which was two years later to be given to the world in the columns of THE LANCET. The articles which inaugurated the antiseptic system of surgery were five in number, each of them entitled "On a New Method of Treating Compound Fracture, Abscess, &c."; they appeared in THE LANCET of March 16th, 23rd, and 30th, April 27th, and July 27th, 1867. The first four of them contain the clinical histories of 11 patients suffering from compound fracture; these cases were under his care in the Glasgow Royal Infirmary during the years 1865 and 1866, and were treated by the local application of carbolic acid; the antiseptic was freely applied to the interior of the wounds in order to destroy the air-borne germs which had the property of causing putrefaction; the opening in the integuments was then covered with lint charged with carbolic acid and protected by an external layer of thin sheet metal. In the fifth of these articles the recommendations for opening abscesses were to the effect that a piece of rag from 4 to 6 inches square should be dipped into a solution of 1 part of crystallised carbolic acid in 4 parts of boiled linseed oil and then laid upon the skin where the incision was to be made. One edge of this rag being raised, the part was incised with a knife previously dipped in the oil, and the rag was instantly dropped upon the skin as an antiseptic curtain, beneath which the pus flowed out. For the subsequent dressings a kind of putty was made by mixing common whiting with the carbolised oil, and this, spread into a layer about 6 inches square, was laid over the incision. At the meeting of the British Medical Association in Dublin in August, 1867, a paper on the antiseptic principle in the practice of surgery was read by him and was printed in THE LANCET and the *British Medical Journal*. It does not describe any important modifications in the technical details, but draws attention to the marvellous improvement in the healthiness of his wards since the introduction of the new treatment. Hospital gangrene and pyæmia had formerly made a frequent appearance in two of his wards, but during the last nine months not a single case of pyæmia, hospital gangrene, or erysipelas had occurred in them. In these six papers Lister made several references to two of his house surgeons, each of whom was named Cameron. One of them was Dr. A. Cameron, who is believed to have died some years ago, while the other was Dr. (now Sir) Hector Clare Cameron, who was for many years professor of clinical surgery in the University of Glasgow, a position which he now holds in an emeritus capacity.

On Nov. 30th, 1867, Lister again wrote in THE LANCET, giving illustrations of the antiseptic treatment and explaining the principles on which it was based, while the two first communications to our columns manifesting the satisfaction of other surgeons with the new treatment appeared on Nov. 9th and Dec. 21st, 1867—the authors being respectively Mr. William Pirrie, professor of surgery in the University of Aberdeen, and Dr. John Maclatchy, of Kilmarnock, in Ayrshire. In the course of the next 12 or 14 months the dressings were rendered much more convenient than formerly by the substitution of carbolised shellac for the carbolised putty already described. The putty, although very serviceable, was awkward to handle when spread thinly and could not always be made to retain its position with certainty, whereas the carbolised shellac plaster spread on thin cloth was at once light, flexible, and strong. During the same period a great extension of antiseptic surgery was rendered possible by the introduction of ligatures of silk or catgut, which were absorbed or remained permanently buried in the living tissues. Owing to the great importance of the catgut ligature and the fact that it did not assume its final form until 1881, it will be convenient to summarise in one paragraph the leading points of its development during all these years and afterwards to return to the events of 1869.

Lister's original paper on this subject appeared in THE LANCET of April 3rd, 1869, with the heading "Observations on Ligature of Arteries on the Antiseptic System." In it he described the case of a woman, 51 years of age, whose left external iliac artery he tied on Jan. 20th, 1868, on account of a femoral aneurysm as big as a large orange and reaching somewhat above Poupart's ligament. Silk thread steeped in carbolic acid was used, the ends were cut short, and the wound was dressed antiseptically. Six weeks after the operation she walked for some time out of doors without over-fatigue, having also to descend and ascend three flights of stairs leading to her room. At the same time he recorded a very successful experimental ligature of the carotid artery of the calf, using for the purpose twisted threads of peritoneum at one place and fine catgut at another. He also published drawings showing the appearance, both naked-eye and microscopic, of the parts when examined 30 days after the application of the ligatures, and announced that surgeons "may now tie an arterial trunk in its continuity close to a large branch, secure alike against secondary hæmorrhage and deep-seated suppuration." The catgut ligatures used for this purpose were directed to be prepared by permanent immersion in olive oil containing carbolic acid, to which a very little water had been added. London surgeons, however, did not share these opinions as to the value of the catgut ligature, for eight years later—namely, in 1877—at meetings of the Clinical Society on Oct. 12th and Nov. 23rd, Mr. Bryant, Mr. Christopher Heath, Sir Thomas Smith, and Mr. Maunder reported cases under their care in which after the application of carbolised catgut ligatures there was either secondary ulcerative action, or secondary hæmorrhage, or recurrence of pulsation in aneurysms. In 1881 Lister was president of the Clinical Society and selected the catgut ligature as the subject of his inaugural address, delivered on Jan. 28th in that year. In this address, which fills more than ten columns of THE LANCET, he said that the favourable results which he had obtained with the catgut ligature were probably due to the simultaneous antiseptic treatment of the wounds continued till healing was perfect; this proviso was essential, for under ordinary treatment (i.e., without antiseptics), if there was a sinus leading to the ligature, septic processes would spread along it, and by inducing unhealthy suppuration and ulceration might give rise at last to disaster from hæmorrhage. The catgut ligatures which he had hitherto been using had, however, one disadvantage—namely, that two months at least were required for their preparation, but he had recently obtained an excellent material for ligatures and sutures by merely immersing the catgut for 48 hours in a solution of 1 part of chromic acid and 200 parts of carbolic acid in 4000 parts of water. It was then removed from the solution, dried, and placed in carbolised oil, after which it was ready for use. When catgut treated in this manner was imbedded in the living tissues it began to be superficially eroded by them after the lapse of a fortnight, and there was ultimately a "substitution of new living tissue for the dead old tissue of the catgut."

Lister had been a teacher of surgery for about ten years when he discovered the advantages of antiseptic dressings. In the lecture-room he had a pleasing delivery which was very easily followed by his hearers. His voice, though not loud and not altogether free from hesitation in pronouncing certain consonants, was neither indistinct nor stammering. Never at a loss for a word, he spoke with the calm deliberation which betokens a well-balanced judgment. His features commonly had a placid, contemplative, serious expression which easily relaxed into a smile in the course of conversation. In personal appearance he was of average height and somewhat slender build; he did not use eyeglasses; his hair, which was abundant and dark in colour, was generally worn rather long; except for small whiskers he was clean-shaven. Both in manner and in speech he was uniformly gentle, sympathetic, and totally free from abruptness, affectation, or self-assertion.

In July, 1869, Professor Syme resigned the chair of clinical surgery in the University of Edinburgh and in the following month Lister was appointed his successor. Not long after entering on the duties of his new position he endeavoured to strengthen his antiseptic precautions by means of an apparatus which could deliver a jet of carbolised spray whenever dressings were applied or changed. He also at this time wrote a long paper entitled "On the Effects of the Antiseptic System of Treatment upon the Salubrity of a Surgical Hospital." This paper, published in THE LANCET of Jan. 1st and 8th, 1870, could not but contain some references to the fact that infective surgical diseases had been notoriously prevalent in the Glasgow Royal Infirmary for many years. The directors of that institution, disturbed by the publicity given to these details, thereupon made a luckless attempt to impugn his statements in the form of a letter which appeared in THE LANCET of Jan. 29th. This production, which was signed by Mr. Henry Lamond, the secretary, plainly showed that the directors did not fully comprehend the significance of hospital gangrene appearing in a healthy wound or of pyæmia suddenly attacking surgical patients. They declared that "in their opinion ..... the improved health and satisfactory condition of the hospital, which has been as marked in the medical as in the surgical department, is mainly attributable to the better ventilation, the improved dietary, and the excellent nursing to which the directors have given so much attention of late years." The directors of the Glasgow Royal Infirmary were as enlightened, intelligent, and well-meaning as any similar public body in the kingdom, but they could not be expected to understand that medicine and surgery are progressive sciences; their minds worked in the same way as the minds of the generality of boards, committees, and councils must work when they are betrayed into dogmatising upon insufficient information. Another point which was not at that time raised by Mr. Lamond, but had no doubt received attention from the directors, was the greater expense of antiseptic than of ordinary dressings. We were able to indicate in these columns that in the Glasgow Royal Infirmary the extra outlay in this respect was regarded as of doubtful utility. Lister, of course, adhered to his belief that the use of antiseptics had a powerful effect in preventing the complications known as hospital diseases. Writing in THE LANCET of August 27th, 1870, he stated that having now been in charge of 50 beds in the Edinburgh Royal Infirmary for nine months, he had not as yet had any case of pyæmia or hospital gangrene.

As already mentioned, carbolised shellac had now for some time superseded carbolised putty in the making of antiseptic dressings, and articles on the treatment of compound dislocation of the ankle by means of this lac plaster, combined with oiled-skin protective, were published by Lister in THE LANCET of March 19th and 26th and April 9th, 1870, which afterwards, we believe, appeared in pamphlet form. At the meeting of the British Medical Association held at Plymouth in August, 1871, he delivered the Address in Surgery, giving to his discourse the title of "The Antiseptic System of Surgical Treatment"; lac plaster and other antiseptic dressings as well as the spray apparatus were shown at the meeting. The address was published in the *British Medical Journal*. After doing good service for about six years the lac plaster was in its turn superseded by gauze charged with carbolised resin, and very full directions for the preparation of this new dressing were given in THE LANCET of March 13th, 1875. This memoir was the first of a series of seven articles, occupying altogether 27 columns, which Lister contributed to this journal in that year. They were all headed "On Recent Improvements in the Details of Antiseptic Surgery." The second and third dealt mainly with various methods of employing carbolised oil and drainage-tubes. The fourth discussed the opening of certain abscesses, the sterilisation and use of sponges, and Lister's experimental proof that the septic ferments were solid particles and not some kind of material in solution; this latter subject had, however, been already set forth by him very fully in a paper published in the *Quarterly Journal of Microscopical Science* for October, 1873, with the heading "A Further Contribution to the Natural History of Bacteria and the Germ Theory of Fermentative Changes." The fifth, sixth, and seventh articles of the series were devoted to the use of boric acid as an antiseptic. In 1875 he made a visit to several university towns in Germany, and the close hold that his doctrines had now obtained upon the intelligence of all enlightened men of science was shown by the enthusiastic welcome that he received from various professors.

In this year the meeting of the British Medical Association was held at Edinburgh, the Address in Surgery being delivered by Professor James Spence. Lister was President of the Section of Surgery, and in this capacity delivered an

address dealing with the great improvement in the healthiness of hospitals in which the antiseptic treatment had been introduced. This address was published in the *British Medical Journal*. From this time forward scientific medical opinion was definitely ranged on the side of Lister's theories. His results were beyond controversy, and dissentient voices were disregarded or classed as evidence of a comic, if respectable, conservatism.

In 1876 Lister was nominated by the Crown to a seat on the General Medical Council as representative of Scotland in succession to Dr. James Warburton Begbie of Edinburgh, who died on Feb. 25th in the same year. The nomination took effect as from March 24th, and in the ordinary course would have held good for five years, but in the middle of 1877 he accepted an invitation to come to London; he accordingly resigned his seat as from August 3rd, 1877, and was succeeded on the Council by Dr. Andrew Fergus of Glasgow. During this his second stay in Edinburgh he resided in the first instance for a short time at 17, Abercromby-place, and afterwards at 9, Charlotte-square.

Sir William Fergusson, professor of clinical surgery in King's College, London, and senior surgeon to King's College Hospital, died on Feb. 10th, 1877. He had held two successive professorships in King's College—namely, that of surgery from 1840 to 1870, and that of clinical surgery since 1870; he had also gained all the distinctions which were open to a member of the medical profession. Mr. John Wood at this time filled the chair of systematic surgery in King's College, but on Sir William Fergusson's death two professorships of clinical surgery were created, one of them being given to Mr. Wood and the other to Mr. Lister; the vacant chair of systematic surgery was filled by Mr. Henry Smith. Lister in accepting this appointment stipulated for and obtained separate wards, house surgeon, dressers, and nurses. His first house surgeon at King's College Hospital was Sir W. Watson Cheyne, who came with him from Edinburgh, and in 1882, in his "Antiseptic Surgery," presented an exhaustive view of the subject in its then stage of development.

Lister delivered the introductory address at King's College at the opening of the session 1877–78, his subject being the phenomena known as fermentation, with special reference to the putrefaction of blood and the souring of milk. The causes and nature of lactic fermentation were also very fully discussed by him on Dec. 18th at a meeting of the Pathological Society, and a number of original experiments were shown and explained. A lengthy report of this address will be found in our columns and in the Transactions of the Pathological Society of London. But versed as he was in all pathological problems, it was in clinical surgery that his deepest interest lay. During the two following years two clinical lectures embodying the results of recent experience were published by him in THE LANCET. The first was on a case of excision of the knee-joint and on the use of horse-hair as a drain for wounds; it appeared on Jan. 5th, 1878. In the second, which appeared on Dec. 20th, 1879, he gave details of the progress of two cases—one in which a little boy had been operated on for empyema and one in which a tumour had been removed from a woman's back, leaving a very large open wound. Both of these cases were dressed with carbolised gauze prepared with a mixture of 1 part of carbolic acid, 4 parts of resin, and 4 parts of paraffin, the spray apparatus being brought into action at the renewal of the dressings. In this lecture he also discussed at some length the function of that part of an antiseptic dressing which he called the protective. This was a layer of material employed to protect the healing surface from irritation by the carbolic acid contained in the outer portion of the dressings. It has been said that Lister was already using the protective in 1870; the improved form which he now recommended was made of oiled silk coated on both sides with specially thick copal varnish and afterwards covered with a layer of dextrine so as to ensure its being wetted when dipped into a watery solution of carbolic acid. The test of a properly made protective was that a solution of carbolic acid might be kept in contact with one side of it for three or four hours without carbolic acid being perceptible to the tongue on the other side. In this clinical lecture and also in the course of some remarks made by him on May 13th, 1881, at a meeting of the Clinical Society of London, of which he was then President, Lister alluded to the toxic effects sometimes produced by carbolised dressings. He said that such cases were infrequent in his practice, probably because he did not repeat the direct application of carbolic acid to a wound oftener than was absolutely necessary. At the outset he destroyed the germs which might have gained access to the wound; and the excess of carbolic acid used for this purpose was soon got rid of by evaporation or absorption; this having been accomplished, the wound remained aseptic and free from carbolic acid, being covered by the protective which was impervious to the carbolic acid existing in the external dressings. Some patients, however, were intolerant of even minute quantities of this antiseptic, and owing to this idiosyncrasy a few instances of toxic absorption had come under his notice. For such cases two other very good antiseptics were available—namely, either salicylic acid in the form of salicylic jute, or a gauze charged with a mixture of 1 part of oil of eucalyptus globulus and 3 parts each of gum dammar and paraffin.

On July 1st, 1880, he was elected a member of the Council of the Royal College of Surgeons of England simultaneously with Mr. William Cadge, Mr. Thomas Bryant, and Mr. Thomas Smith; on expiry of his term of office he decided that he would not seek re-election. At the meeting of the British Medical Association held at Cambridge in August, 1880, he took part in two of the discussions and received the honorary degree of LL.D. from the University.

An interesting subject, which has already been touched upon, is the reception given to the new treatment by various leading members of the medical profession. The history of medicine abounds with instances of vigorous opposition to important advances and improvements, and Lister had for several years to encounter much hostile criticism. Within eight months of the publication of his first paper on compound fracture Sir James Simpson, professor of midwifery in the University of Edinburgh, wrote in THE LANCET of Nov. 2nd, 1867, an article five columns in length elaborately proving what was already well known and generally admitted—namely, that Lister was not the first surgeon to use carbolic acid. He, moreover, assured his readers that Lister's methods of preparing and applying antiseptic dressings were not original, but had already been in use for some years by three surgeons in Paris (Dr. Lemaire, Dr. Déclat, and M. Maisonneuve), by Dr. Küchenmeister in Dresden, and by some others. Sir James Simpson's arguments, however, did not make many converts, and his attack on Lister came to nothing. During the next 12 or 13 years many of Lister's pupils trained in Glasgow and Edinburgh practised the antiseptic treatment and spread a knowledge of its essential details, but notwithstanding all the demonstrations of its utility that had been given in the hospitals, in the lecture room, and in the medical press, not a few eminent English surgeons were as incredulous in 1880 as the directors of the Glasgow Royal Infirmary had been in 1870. As illustrations of this it may be sufficient to specify two men of great reputation, one in London and one in Birmingham, each of them proficient in the arts of controversy and exercising much influence on professional opinion. At the meeting of the British Medical Association held at Cork in August, 1879, the address in surgery was delivered by Sir William S. Savory, who spoke with his wonted fluency and eloquence in attack or ridicule of the system of antiseptic surgery. Sir William Savory enjoyed the then unprecedented distinction of being elected President of the Royal College of Surgeons of England for five years in succession, was full surgeon at St. Bartholomew's Hospital from April, 1867, to November, 1891, and afterwards consulting surgeon until his death in 1895, so that his opposition was a serious matter. Mr. Lawson Tait, of Birmingham, though not so officially important a man, was a great surgeon, and his antipathy to the Listerian doctrines was far more unrestrained. Tait was the first professor of gynæcology at Mason University College, and delivered the address in surgery at the meeting of the British Medical Association held there in 1890. A very skilful surgeon and gynæcologist, he proposed several new and valuable methods of treatment and had a remarkable success in abdominal operations, but his attitude towards the antiseptic doctrines betrayed his unlucky limitations. His opinion of Lister's antiseptic method may be inferred from the following extracts taken from two letters. In the first he wrote: "In my experience it was an almost uniform result that wounds dressed after Lister's plan suppurated, and in many cases they sloughed, and though none of the patients died many of the recoveries were anxious and protracted. ..... It is therefore to me conclusively proved that our

improved results in abdominal surgery do not depend on Mr. Lister's principles at any rate." In the second he wrote: "Lister's antiseptic doctrines and practice were based upon a conception altogether false from my point of view. ..... The Listerism of 20 and 15 and 12 and 10 years ago is dead. ..... The doctrines and practices of Lister have been the basis of the strangest surgical craze of the nineteenth century." Savory made no converts, Tait had no following, and gradually the surgeon who ridiculed Lister was seen himself to be ridiculous.

At the International Medical Congress which met in London in the beginning of August, 1881, Lister delivered two addresses—one on August 5th before the Pathological Section on the Relation of Micro-organisms to Inflammation, and one on August 8th before the Surgical Section on the Treatment of Wounds. These two addresses contain what seems to be his first published reference to pathogenic bacteria as a distinct class of micro-organisms (see THE LANCET of Oct. 22nd, 1881, p. 693, column 1; and Nov. 26th, 1881. p. 902, column 1 and footnote). At the end of the first of these addresses he explained his views on the treatment of strumous disease of joints, while the leading feature of the second one was a discussion of the success which in the practice of several surgeons had followed ovariotomy performed without antiseptic precautions. On Oct. 29th, 1883, he delivered before the Medical Society of London an address on the Treatment of Fracture of the Patella. The patients were seven in number, five suffering from recent fracture and two from ununited fracture of several weeks' standing; the fragments were wired, the wire being sometimes removed subsequently and sometimes left permanently *in situ*. The address was published in the *British Medical Journal*, and formed a very practical demonstration of what antiseptics could do; for with the Listerian methods an injury, too often under the older treatment leading to recurrent and permanent lameness, could be absolutely and safely cured.

In December, 1883, he received the honour of a baronetcy.

On Oct. 20th, 1884, he delivered before the Medical Society of London an address on Corrosive Sublimate as a Surgical Dressing. He had already, in the course of a discussion at the Woolwich Military Medical Society on Feb. 15th in the same year, drawn attention to the antiseptic properties of this substance. In this address, which will be found in our columns, he described a great many original experiments devised for the purpose both of testing the efficacy of various antiseptics and also of ascertaining the best means of applying corrosive sublimate. He found that a solution of this substance in the serum of horse's blood, although much less irritating to the skin than a solution of equal strength made with water, was nevertheless powerfully antiseptic. As the result of various experiments with serum solutions he gave the preference to a combination of 1 part of corrosive sublimate with 100 parts of serum. Gauze charged with this in the proportion of 2½ parts of the liquid to 1 part of gauze would, when dried and ready for use, contain from 2 to 3 per cent. of its weight of the mercurial salt. Although very satisfactory as an antiseptic application to wounds, this gauze was somewhat harsh mechanically and was not very absorbent; the manufacture of it was also attended with the difficulty that the necessary serum of horse's blood was not always easily obtainable.

Lister had already publicly stated that his actual practical work in surgery was drawing to a close, when in November, 1889, he delivered two discourses on a new antiseptic dressing—one of them before the Medical Society of London on Nov. 4th and the other before the Hunterian Society on Nov. 27th. Including an account of his method of treating old dislocations of the shoulder-joint, the two articles together occupy nearly 16 columns of THE LANCET. He commenced with a short reference to the serum and corrosive sublimate described, as already mentioned, some five years back, and said that a few weeks after that date he began to experiment with the double salt of bichloride of mercury and chloride of ammonium, familiarly known by its mediæval name of sal alembroth. As compared with bichloride of mercury it was more efficacious antiseptically and much less irritating, but its free solubility rendered it liable to be washed out of the dressings by the discharge from the wound. Lister therefore regarded it as untrustworthy, and concluded his account of it with the following remark: "I may say that I myself have never published anything in favour of sal alembroth dressings; I have never been satisfied with them. It has leaked out that I have used them and they have come into extensive employment, but never with my published sanction." Biniodide of mercury, prepared by precipitating a solution of bichloride of mercury with iodide of potassium dissolved in a weak solution of starch, was a useful antiseptic for applying to gauze, as the starch caused the feebly soluble precipitate to adhere firmly to the fibres; the biniodide was, however, sufficiently soluble in blood serum to become irritating. Lister therefore resumed some experiments which he had already been making with the precipitate obtained by mixing solutions of cyanide of mercury, cyanide of potassium, and sulphate of zinc. This precipitate was an amorphous powder, insoluble in water, but soluble in 130 parts of glycerine, or 3000 parts of blood serum. Its mercury component was soon found to be unexpectedly small; subsequent investigation showed that it was a true double cyanide of mercury and zinc but of an unusual type; an account of its chemical peculiarities will be found in a long paper by Professor Wyndham R. Dunstan, published in the *Journal of the Chemical Society* for 1892. This double cyanide had a remarkable power of inhibiting bacterial growth. Its germicidal efficacy or ability to destroy existing bacteria was inferior to its inhibitory power, but this deficiency was corrected by moistening the dressings with a 5 per cent. solution of carbolic acid; corrosive sublimate must not be employed for this purpose, because it formed with the double cyanide a triple compound which had the defects of being feebly germicidal and highly irritating. Lister found by experiments on his own person that the powder of the double cyanide might be kept applied to the skin for an indefinite time without occasioning any irritation. The powder moistened with a weak solution of corrosive sublimate and rubbed into hairy parts would also render the hairs aseptic. Copious directions for the preparation and use of dressings charged with this precipitate will be found in Lister's own words in THE LANCET of Nov. 9th, 1889, and Jan. 4th, 1890.

At the International Medical Congress held at Berlin in August, 1890, he delivered an address on the Present Position of Antiseptic Surgery. On this occasion he made some observations on the success in abdominal operations achieved by certain surgeons who were well known to be hostile to the use of antiseptics as employed by himself. He also mentioned that carbolic acid had now given place to the less irritating although more efficient solutions of corrosive sublimate, and that the carbolic spray had been abandoned three years previously. He further stated that the antiseptic combination of cyanides of mercury and zinc could now be prepared in a perfectly definite manner; although the new product contained twice as great a percentage of cyanide of mercury as was present in the substance originally used, it nevertheless had no tendency to cause irritation.

At the International Congress of Hygiene and Demography held in London in August, 1891, he was president of the Section of Bacteriology, and delivered the introductory address in that section.

In 1892 the regulation imposing an age-limit made it necessary for him to resign his position as clinical lecturer at King's College Hospital. When making his last appearance in this capacity at the end of July in that year he addressed the students on the Present Aspect of the Essential Parts of the Antiseptic Treatment of Wounds, spoke with some sadness of the termination of his work as a teacher, and reminded them that medical practitioners were under an obligation to labour for the good of their fellow men. In the ensuing session, 1892–93, he received the title of emeritus professor of clinical surgery, being succeeded in the duties of the chair by the late Mr. W. Rose. The authorities of King's College retained his services as surgeon to the hospital for another year, until at a meeting of the council held on July 26th, 1893, he was appointed consulting surgeon.

On Jan. 18th, 1893, he delivered at the hospital in the London post-graduate course an address on the Antiseptic Management of Wounds. As he would in a few months cease to be an active member of the hospital staff, this address, which was printed in THE LANCET of Jan. 28th and Feb. 11th and 18th, 1893, was very important as containing the results of his matured experience of antiseptic surgery. It was not, indeed, his final utterance on the subject, for Sir

Hector Cameron's small book "On the Evolution of Wound Treatment during the last Forty Years," published in Glasgow in 1907, contained an independent section of five pages headed, "Note by Lord Lister." In this "Note" Lister added a little to what he had said in the address with regard to the properties and use of the double cyanide of mercury and zinc, and he made an express reference to this address, without indicating that his views as there set forth had undergone any change. For the absorption of blood or other discharges from an operation wound he preferred sponges to any of the substitutes that had been at various times proposed. For the purification and sterilisation of such sponges, with an especial view to the destruction of both the sporeless micrococci and the spore-bearing tubercle bacillus, he preferred carbolic acid (dissolved in 20 parts of water) to any other germicide. He used a precisely similar solution for purifying the instruments, the hands of the operator, and the skin of the patient, except only in the case of the eyelids, for which carbolic acid was too irritating, and a weak solution of corrosive sublimate was probably the best substitute. In circumstances where it was impossible to exclude septic agencies, such as in operations upon the mouth or the rectum, or in putrid sinuses, or in certain compound fractures, iodoform might be dusted over the cut surfaces of a wound, after mopping with a solution of 40 grains of chloride of zinc in an ounce of water. The usefulness of iodoform was, however, rather limited. The agent which he had found the most satisfactory as the antiseptic ingredient for incorporation with the gauze of the external dressing was the double cyanide of mercury and zinc, this substance being made to adhere to the gauze by mixing it with an aniline dye called rosanilin in the proportion of a quarter of an ounce of the dye to 4 pounds of the double cyanide. Before application to a wound the cyanide gauze must be rendered damp with solution of carbolic acid. The cyanide powder dyed with the rosanilin might also be treated with enough of the 1 in 20 carbolic lotion to make a sort of soft mud or cream which might be applied with a camel's-hair brush to parts where there was very little space between the wound and some source of septic contamination such as the anus. In some circumstances the cyanide powder might possibly be used as a kind of first-aid dressing by dusting it over wounds with a pepper-box. When there was a free discharge from a wound he preferred, as a rule, to remove the first dressing after the lapse of 24 hours, but a longer interval ought to be allowed after certain amputations. Very full directions for carrying out the various procedures were given by Lister both in Sir Hector Cameron's book and also in the numbers of THE LANCET already mentioned.

On April 9th, 1895, at Marlborough House, the Prince of Wales (later King Edward VII.) presented Lister with the Albert Medal of the Royal Society of Arts which had been awarded to him in recognition of his application of antiseptic methods to practical surgery. On July 30th of the same year, in the theatre of King's College Hospital, he was presented with a three-quarter length portrait of himself, painted by Mr. Lorimer, A.R.S.A., and accompanied by an illuminated and illustrated album containing the names of his friends, colleagues, and pupils, who had agreed on this method of showing the affection and esteem which they entertained for him. The presentation was made by Sir John Erichsen, to whom Lister had been house surgeon more than 40 years previously. In the same year he obtained the proudest scientific position open to a man by being elected President of the Royal Society.

When the British Association for the Advancement of Science met at Liverpool in September, 1896, he occupied the presidential chair, and took for the subject of his address the Interdependence of Science and the Healing Art. As the British Association has no medical section communications on strictly medical topics are not received, but biology has for a long time held an important place on the programmes, and he delivered an interesting address dealing mainly with the phenomena of fermentation and bacterial growth, the relation of bacteria to the healing of wounds and to the causation of certain diseases, the results of the application of the germ theory to surgery, the value of vaccination as a preventive of small-pox, and Metchnikoff's observations on phagocytosis. It was not the first time that he had contributed to the proceedings of the Association, for as long ago as 1857, when the Association met at Dublin, physiology being included as a subsection in the Section of Botany and Zoology, Lister read a paper on the Flow of the Lacteal Fluid in the Mesentery of the Mouse; he found that the lacteals, though known to be muscular, did not, in the mesentery at least, promote the flow of the chyle by contraction, rhythmical or otherwise; indigo mixed with the food of the mice passed freely along the intestines, but none of it was ever seen in the chyle.

Lister's elevation to the peerage was the most conspicuous feature of the New Year honours conferred by Queen Victoria in the beginning of 1897, the same year in which she at a later period celebrated the sixtieth anniversary of her accession to the Throne. Nothing was more noticeable than the universal approval which the appointment called forth from all quarters, the press of every party and shade of political feeling being hearty in its praise of the creation of the new peer, whose titular distinctions were manifestly independent of political considerations, because it was under a Liberal administration (Mr. Gladstone's) that he became a baronet and under a Conservative administration (Lord Salisbury's) that he became a peer. He took his seat in the House of Lords on Feb. 23rd, being introduced by Lord Watson and Lord Playfair, and delivered his maiden speech in the middle of May in the course of a debate on venereal disease amongst the troops in India. He did not take any part in political debates, but spoke fully upon the Vaccination Bill in 1898.

On March 29th, 1897, at the Royal College of Surgeons of England, a portrait of him, painted by W. W. Ouless, R.A., was formally presented to the College on behalf of the subscribers. The honorary medal of the College was awarded to him on April 8th, the actual presentation of it being made on June 10th. During the end of August and beginning of September, 1897, the British Association for the Advancement of Science and the British Medical Association held their annual meetings, not in the United Kingdom as usual, but in Canada; Lister was present at both and was in a variety of ways cordially welcomed by the Canadian representatives of medicine and science. On Oct. 8th, 1898, he opened the Thompson-Yates Laboratories of physiology and pathology in Liverpool and received the degree of Doctor of Science from the Victoria University of Manchester. On Feb. 28th, 1899, he was nominated a special foreign member of the Paris Academy of Sciences, and on April 22nd he was again in Liverpool presiding at the inauguration of the School of Tropical Medicine in that city; this school subsequently had at its disposal the Mary Kingsley Memorial Medal, which was founded for the purpose of recognising the work of those who had accomplished much in the cause of tropical medicine, and in February, 1908, the medal was awarded to Lister.

Professor Thomas Henry Huxley, who died on June 29th, 1895, had commenced his professional career as a student in the medical school of Charing Cross Hospital in 1842, and in memory of him a special prize and a scholarship for students in that school were founded; a lectureship was also created, the lecture to be delivered every second year and to deal with recent advances in science and their bearing on medicine and surgery. The first of these Huxley lectures was delivered by Professor Michael Foster, of the University of Cambridge, on Oct. 5th, 1896; the second by Professor Rudolf Virchow, of Berlin, on Oct. 3rd, 1898; and the third by Lord Lister on Oct. 2nd, 1900. Lister's discourse was entitled "Early Researches leading up to the Antiseptic System of Surgery," and narrates the whole story from the chief actor's point of view. The researches in question were pursued during the period of about 12 years between 1852, when he took his degree, and 1864, when he made persistent but unavailing trials of sulphite of potassium as recommended by Dr. Polli of Milan in the treatment of pyæmia. The chief points touched upon in the Huxley lecture were suppuration, inflammation, the coagulation of the blood, and the diversified phenomena presented by the circulation of the blood and the movement of the pigment granules as seen with the microscope in the web of the frog's foot.

At a comparatively early stage in his career Lister's microscopical observations of certain vital phenomena received favourable recognition from the Royal Society of London, and in later years the highest honours at the disposal of that learned body were bestowed on him. As these various events occurred at intervals during a period of more than 40 years it will be convenient to group them

in one or two paragraphs separately from his surgical work. In his student days medical microscopy was very different from what it now is, but he was an adept in the methods of manipulation then practised, and particularly expert in drawing microscopic objects by means of the camera lucida. Some of his papers communicated to the Royal Society have been already mentioned. The first four, written while he was assistant surgeon to the Edinburgh Royal Infirmary, were as follows: (1) An Enquiry Regarding the Parts of the Nervous System which Regulate the Contractions of the Arteries; (2) On the Cutaneous Pigmentary System of the Frog; (3) On the Early Stages of Inflammation; and (4) Preliminary Account of an Enquiry into the Functions of the Visceral Nerves, with special reference to the so-called "Inhibitory System." Nos. 1, 2, and 3 were communicated for him by Dr. William Sharpey, secretary of the society; they were read on June 18th, 1857, and were printed consecutively in Vol. CXLVIII. of the Philosophical Transactions of the Royal Society (the annual volume for 1858), where they fill 96 large pages, and are illustrated by two full-page plates of drawings, both plain and coloured. No. 4 was in the form of a letter to Dr. Sharpey, and was printed in the Proceedings of the Royal Society, Vol. IX. (1857–59). being marked, "Received, August 13th, 1858." On June 7th, 1860, he was elected a Fellow of the Royal Society. On June 11th, 1863, he delivered before the society a Croonian lecture on the Coagulation of the Blood, which, as already mentioned, was soon afterwards published in THE LANCET. In 1880 one of the Society's Royal Medals was conferred on him. In reference to this award Mr. William Spottiswoode, in his presidential address delivered on Nov. 30th in that year, said that "Lister's claims to the honour of a Royal Medal are based upon his numerous and valuable contributions to physiological and biological science during the last 30 years." On Dec. 31st, 1890, Sir William Thomson was elected President of the Royal Society. He was soon afterwards raised to the peerage with the title of Lord Kelvin, and on the completion of the usual period retired on Nov. 30th, 1895. Lister was on that day elected President in succession to Lord Kelvin, and accordingly occupied the chair at the meeting held on Dec. 5th. Although several physicians have been presidents of the Royal Society Sir Benjamin Collins Brodie is the only surgeon upon whom this honour has been conferred except Lister. It is customary for the President of the Royal Society to deliver five official addresses, one at the conclusion of each year of office. In Lister's case the first one was published in the Proceedings of the Society, and the subsequent ones in its Year-book. At the annual meeting of the society in 1902 he received the Copley medal. Replying for the medallists at the dinner usually held on the evening of the meeting, he commented on the unsympathetic attitude of many surgeons towards the antiseptic system in the earlier period of its history, proving that he knew, though his attitude had been throughout so steadily forbearing, that animus had been employed against him. His revenge in this his jubilee year (he was admitted M.B. Lond. and F.R.C.S. Eng. in 1852) was very complete, for most of his opponents' names and all their words had been by this time forgotten. The *British Medical Journal* published on Dec. 13th, 1902, a number especially in celebration of Lister's jubilee of medical work.

Lister's admiration for the researches of Pasteur naturally led him to take a deep interest in the movement for the creation in this country of an establishment specially devoted to the bacteriology of infectious diseases and having objects of a general similarity to those of the Pasteur Institute in Paris and the Imperial Hygienic Institute in Berlin. At a meeting held in London at the Mansion House on Dec. 5th, 1890, an executive committee was formed to take measures for the purpose, and of this committee Lister was appointed chairman. Cambridge was at first considered to be an advantageous centre for carrying on work of this kind, but a site was eventually secured in Chelsea Bridge-road, London, overlooking the River Thames. The new establishment was originally called the British Institute of Preventive Medicine. There was at the outset some difficulty in obtaining a licence from the Board of Trade, but this was satisfactorily arranged, and the articles of association were duly signed at Lister's residence in London on July 21st, 1891, by himself as chairman of the council, Sir Spencer Wells, Sir Henry Roscoe, Sir George Humphry, and others. The work of the institute was begun in temporary premises at 101, Great Russell-street, London, during the erection of the permanent buildings which were not ready for occupation until May, 1898. In connexion with a benefaction bestowed by the Jenner Memorial Committee in 1898, the establishment on Dec. 6th in that year underwent a change of name, being then designated the Jenner Institute of Preventive Medicine. At the annual general meeting of the institute held in June, 1899, it was announced that Lord Lister would be chairman of the governing body. On Sept. 13th in the same year permission was obtained for an alteration of the memorandum of association in consequence of a gift of £250,000 received from Lord Iveagh. After the change of name to Jenner Institute of Preventive Medicine a curious and unexpected difficulty came to light—namely, that a manufacturer of calf lymph carrying on business at no great distance from the institute had already called his premises the "Jenner Institute for Calf Lymph" and was using Jenner's name as a hall-mark for his wares. On account of the similarity of the two names it would have hardly been possible to avoid creating some bewilderment in the minds of the public if the Jenner Institute of Preventive Medicine manufactured calf lymph. The problem was solved at a meeting held at the institute in Chelsea Bridge-road in July, 1903, when a motion to alter its name to "The Lister Institute of Preventive Medicine" was unanimously adopted, and in the course of the next two months the legal formalities necessitated by the change of name were completed.

Lister was on more than one occasion honoured by receiving appointments as surgeon to the reigning sovereign. During his professorship in the University of Edinburgh he became one of Queen Victoria's surgeons in Scotland, but on his removal to London in 1877 he necessarily vacated this position. At this time Sir James Paget was one of the Queen's serjeant-surgeons, and after the death of Sir Prescott Gardener Hewett in 1891 he remained the only one. Sir James Paget having died on Dec. 30th, 1899, it was announced in the *Gazette* of March 20th in the following year that Lister had been appointed to the vacancy; he had already for some time been surgeon extraordinary to Her Majesty. After the death of Queen Victoria, which occurred in January, 1901, Lister was during the first year of the new reign sole serjeant-surgeon to King Edward VII., but he subsequently shared this dignity with a colleague promoted to the same rank.

Lister's eightieth birthday, which fell on Friday, April 5th, 1907, brought to him congratulatory letters and addresses from all parts of the world. At a meeting held at the Royal College of Surgeons of England on the previous day under the chairmanship of Sir Henry Morris, President of the College, it was decided that the anniversary would be suitably commemorated by a republication of Lister's scientific papers which, as he himself said in his Huxley lecture, were "scattered through a variety of media of publication extending over a pretty long period." It was also agreed to preface the volumes with an introduction which, without being in any sense a biography, would enable the various steps in his discoveries to be rightly appreciated. This most valuable contribution to the history of surgical progress was completed in 1909, the collected papers being published in two substantial volumes.

In 1908 he was invited to accept the position of Chancellor of the University of Glasgow, but felt himself compelled to decline the invitation because of the feeble state of his health; in that year, however, he published in THE LANCET and *British Medical Journal* three important original papers which had not previously been in print, although parts of them had been written several years before. The first one appeared on Jan. 18th, and contained a description of the preparation of catgut for surgical purposes; the catgut was directed to be placed in a solution of chromium sulphate prepared by mixing solutions of sulphurous and chromic acids, and after 24 hours' immersion was to be dried on the stretch. The second paper, which appeared on April 11th, was on the treatment of fractures of the patella of long standing; and the third, which appeared on June 27th, consisted of remarks on some points in the history of antiseptic surgery. They were the last on the long list of original articles which he had contributed to THE LANCET during a period of 43 years.

Among the various tokens of general public esteem bestowed on him, mention may be made of the freedoms of some municipalities. On June 15th, 1898, he received

the freedom of the city of Edinburgh, and on June 28th, 1907, the freedom of the city of London. On Jan. 21st, 1908, he was enrolled a freeman of the city of Glasgow, a letter from him being read expressive of his regret that illness prevented him from being present at the ceremony. As mentioned in the early part of the present article, Lister's birthplace is now included within the extra-metropolitan borough of West Ham, which is of comparatively recent creation, and at the annual meeting of the council held at Stratford in Essex on Nov. 9th, 1908, his acceptance of the freedom of the borough was announced by the mayor, who at the same time read a letter from him thanking the council for their courtesy; on account, however, of the weak state of his health it had been found necessary to dispense with the usual ceremonies.

In addition to the qualifications which originally admitted him to the medical profession, Lister held various honorary degrees from the Universities of Edinburgh, Dublin, Glasgow, Oxford, Cambridge, Würzburg, Bologna, Budapest, Geneva, and the Victoria University of Manchester. He was a Fellow of the Royal Societies of London and Edinburgh, of the Royal College of Surgeons of Edinburgh, of the Faculty of Physicians and Surgeons of Glasgow, and of University College, London; a laureate of the French Academy of Sciences; an associate member of the French Institute and of the Paris Academy of Medicine; a corresponding member of the Paris Surgical Society; and an honorary member of the American Academy of Arts and Sciences. A peer and a member of the Privy Council, he also possessed the British Order of Merit, the Grand Cross of the Danish Order of the Danebrog, and the Prussian Ordre Pour le Mérite.

We have purposely confined this obituary notice of the world's greatest surgeon to a list of the actual things that he did with the dates on which he did them. No panegyrics are needed: the greatest modern Englishman is dead.

Messages of sympathy have been received by Lord Lister's family from the King, from Queen Alexandra, and from other members of the Royal Family. The first part of the funeral service will be held to-day (Friday, Feb. 16th), in Westminster Abbey, at 1.30 P.M., and the interment will take place privately at Hampstead Churchyard. The pall-bearers will be: Lord Rayleigh, Lord Rosebery, Lord Iveagh, Sir Archibald Geikie, Sir Hector Cameron, Sir W. Watson Cheyne, Mr. Rickman J. Godlee, and Professor F. M. Caird. The offer of burial in Westminster Abbey was declined by the executors, because of Lord Lister's expressed wish to be buried beside his wife.

The portraits which we publish will be recognised as reproductions of the frontispieces to Lord Lister's Collected Papers. The plate was taken by Messrs. Barrauds, Limited, and the inset illustration by Messrs. Moffatt, of Edinburgh.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Genealogy of the Austro-Hungarian Heir-Apparent.

THE well-known historian Otto Forst has recently published an elaborate monograph on the genealogy of the Archduke Francis Ferdinand, heir-apparent to the throne of Austria-Hungary, and several parts of the work will possess much interest for medical readers. The antecedents of the Habsburg family are very complicated, for numerous families of different nationalities have a place in the history of this famous and ancient house. The genealogical table of the Archduke Francis Ferdinand, who in due time is expected to succeed to the throne of his uncle, the present aged Emperor, contains 1204 ancestors, many of whom belong to more than one of the names mentioned, as the Habsburgs at various times frequently married into families of the same line. There are 112 different families altogether, from whom the archduke can claim descent. Of these, 71, or 63 per cent., were of German nationality, 20 were Polish, 8 were French, 7 were Italian, and 1 each belonged to the Russian, Scotch, Swedish, Roumanian, and Hungarian nations. It may be mentioned that all the ruling families of Germany are represented in the table, the Bavarian family of Wittelsbach predominating with 52 persons, who appear 204 times in the list. This was naturally to be expected, but at the same time the records show that 57 families, or about 50 per cent., had a place among the less important orders of the nobility, whilst some of the ancestors even belonged to the lower ranks of the population. Another interesting feature of the genealogy is the fact that the medical profession is represented, for the archduke is a descendant of the Medici, the famous Italian rulers, who had several pills in their coat of arms in memory of their ancestral occupation as apothecaries and medical men.

Proposed Reform of the Medical Curriculum.

The present system both of teaching and also of conducting examinations in the course of medical education is not very congenial to the majority of the students in this country, and several representations explanatory of their views have been sent to the Ministry of Education within the last few years. The principal changes desired by the students' committee are as follows. The examination on biology, botany, and chemistry should take place at the end of the second or third semester instead of one year later, as hitherto, so as to give one year more to clinical study. The examinations should last longer than the 15 minutes now granted to each candidate, and should be of a more general character than hitherto. Instruction in several branches of medicine, which hitherto has been only optional, should be made compulsory, the systematic teaching of otology, physical therapeutics, and serology being especially wanted, as their importance was growing daily. A final hospital year should be made compulsory before the student could graduate at the University, as is the rule in Germany. The students find much support in their endeavours amongst the professors and the profession generally, and their requests will most likely be complied with before long, as they do not involve any considerable expenditure of public money.

The New Scale of Prices (Arzneitaxe) for Drugs.

On Feb. 1st a new scale of prices for drugs came into force in this country, in spite of the opposition by the Krankencassen, which will find it a heavy burden on their finances. Pharmacy in Austria is controlled by the Government; the drug-stores are not only limited in number, but even the premises which they occupy are restricted as regards local situation, and the prices of the drugs are also fixed by a Government Order. The increase of prices is nearly universal for all drugs and remedies, the advance being from 40 to 100 per cent. above last month's prices. The alkaloids are now twice as dear as formerly owing to the manufacturers having organised a "trust" in this branch. Thus, for instance, a gramme (16 grains) of codeine now costs 1*s.* 8*d.*, whereas formerly it was 10*d.* Extract of opium has become dearer by 50 per cent.; ipecacuanha root is also dear. Phenol costs now a penny per gramme which formerly cost a halfpenny. Morphine has been raised from 7*d.* to 1*s.* 4*d.* per gramme, and bromide of sodium is dearer by 35 per cent. Ether for inhalation as an anæsthetic, menthol, and digitalis are now dearer by 50 per cent., but chloroform has become cheaper. As compensation for the increase of the price of the drugs, the charge for manipulating them (mixing, powdering, and dissolving in liquids) has been lowered, so that the public will not have to bear the full burden of the rise of prices. The pharmaceutical chemists still find that their business is not satisfactory, for the numerous ready-made preparations are so much asked for by the public that the profit made on the prescriptions dispensed in accordance with the old style is insignificant. The apothecaries would therefore like to restrict the sale of the ready-made preparations, as they derive little profit from it. On the other hand, the Krankencassen urge their medical officers to prescribe the necessary remedies in the cheapest possible way, to substitute equivalents for expensive drugs, and to make as little use as possible of alkaloids. The result is that the druggists find themselves in an unpleasant position, and suggestions have already been made to the effect that pharmaceutical businesses should be turned over to the Government and made a monopoly, like the sale of tobacco and salt in this country.

Clinical Material in Vienna.

In the General Hospital of Vienna, and in the other hospitals of this city where medical students receive instruction, over 34,000 in-patients were admitted in the year 1911, and their diseases were explained to, and watched by, the students. The number of new out patients in the same institutions was

a little over 100,000 that year; minor operations on all parts of the body were performed on out-patients and in a good many cases by the students themselves. Some 3000 post-mortem examinations were conducted in these hospitals—with us there is only very little difficulty in obtaining permission for such examinations in the case of a patient dying in a hospital—and the same number of births happened in the two obstetric clinics only. Thus, there was plenty of material for the instruction of the students, as well as for post-graduate classes and special courses. For practising surgical operations on the dead body there is ample opportunity in this city.

Feb. 10th.

THE NATIONAL INSURANCE ACT.

LECTURES ON THE PROVISIONS OF THE ACT.

THE secretary of the Insurance Commissioners has given notice that the National Health Insurance Commission (England) are organising a series of lectures in London with a view to explaining in detail the provisions of the National Insurance Act to officials of organisations likely to become, or assist in the formation of, approved societies. Each course, it is said, will consist of a sufficient number of lectures to cover the whole Act, so far as it relates to health insurance. Afternoon and evening courses have been arranged. Societies which desire that their responsible officials should attend these courses are requested to communicate at once with the secretary to the National Health Insurance Commission (England), Buckingham Gate, London, S.W. Where sufficient demand is shown to exist the Commissioners hope to arrange similar courses of lectures in provincial centres.

The recent declaration made by the Chancellor of the Exchequer as to the position of the medical men under the Act will require a good deal of explanation from the lecturers, if they are to do their duty and make clear those parts of the National Insurance Act which have reference to the medical profession.

"AN APPEAL FOR A STRONG BUT MODERATE POLICY."

Under this title a circular letter has been issued to the medical profession by a number of practitioners "attached to no particular party and committed by no pledges to support or oppose the present Council of the British Medical Association." On the one hand, they declare, is the so-called "No service whatsoever" policy of the *Practitioner* and of certain other bodies outside the British Medical Association. On the other hand is the policy already approved by a considerable number of divisions of the Association, including the general body of Scottish and Welsh Divisions—namely, "No service unless the six points and adequate remuneration are first definitely assured by the Commissioners in their regulations." The signatories believe that the former policy would be fatal to the interests of the profession, while the latter would lead to certain victory. They maintain that it is a delusion to suppose that the profession could by the former policy prevent the Act from coming into operation, or even prevent the medical benefits from being given in one form or another. It is too readily assumed, the circular continues, that if the profession refused to form panels, a whole-time service would be attempted. The Commissioners may also "suspend the benefit," giving the insured the equivalent in cash. In such case the approved societies, strengthened in numbers and in prestige, would undoubtedly undertake the organisation of separate medical services. They would be free from any of the restrictions which the Act places upon the Insurance Committees. They would be free to appoint doctors and dismiss them at their pleasure. They could make individual bargains with doctors, playing one off against another in the way that has produced all the abuses of cheap contract practice in the past. If the profession began by putting their case before the Commissioners and the public in a reasonable way, and their reasonable demands were refused, they would be in a strong position to resist. But if the profession began by refusing to negotiate, public sympathy would undoubtedly be alienated. The circular next asserts that the published opinions of counsel show conclusively that the six points can all be obtained under the Act as it stands. But in existing conditions no person or persons should be endowed with plenipotentiary powers. Whatever negotiations may take place, the complete control must be kept by the rank and file of the profession in their own hands. Any committee appointed to put the case for the profession before the Commissioners should be appointed for that purpose only, and should have no authority to settle terms. The circular was sent out at first with 52 signatures, and further names have since been added.

THE BRITISH MEDICAL ASSOCIATION.

In preparation for the Representative Meeting on Feb. 20th and 21st, at the Guildhall, London, many local divisions have already met, and some have favoured us with the results of their consideration of the Council's report and of the recommendations which we printed in our issue of Feb. 3rd. The information so far made public as to the intentions of the divisions has, however, been so partial that it would be unfair to draw any broad conclusion from it.

The Reform Committee of the British Medical Association have now drafted the Bill "to Amend the National Insurance Act," whose principal headings we published in advance last week. This amending Bill has been prepared by counsel. The Reform Committee recognise that it is outside the range of measures which can be brought forward by private Members, and they issue it as a definite scheme containing the minimum demands of the profession.

THE MEDICAL FEDERATION, LIMITED.

About 250 practitioners assembled at the Royal Hotel, Bristol, on Feb. 13th, to hear of the progress made by the project to which the Bristol Division of the British Medical Association has committed itself. The Federation is a limited company which has been registered under the Companies' Consolidation Act, 1908, with a provisional directorate composed of the executive committee of the Bristol Division of the Association. Its officers also are officers of the Association Division. At this meeting Mr. H. F. Devis, secretary to the Federation, explained its origin and its purposes. He showed that the movement is in no sense opposed to the Association, that on the contrary the two are in close touch with each other, and that success on the part of the Federation will go far to consolidate the Association. In a word, it is designed to collect quickly a large fund out of which medical men suffering financially through obedience to the advice of the Federation may be fully indemnified. It has been so contrived that it can be amalgamated with the British Medical Association or with any other body having as its chief aim the consolidation of the profession for purposes of defence. The promoters of the scheme anticipate that its membership will soon become co-extensive with that of the Association, since it offers an efficient fighting weapon. As soon as the movement attains national proportions the present provisional government will be superseded by a more widely representative one, and at the same time the Federation will be able to undertake a definite line of action in regard to the present crisis. It is announced that the scheme has been pronounced financially sound by experts to whom it has been submitted. After questions had been answered by Dr. T. M. Carter, the chairman, and Mr. G. Scott Williamson, managing director of the Federation, a resolution of confidence in the management was carried unanimously.

MR. LLOYD GEORGE AND THE MEDICAL PROFESSION.

The Chancellor of the Exchequer addressed a meeting of supporters of the Government at the London Opera House on Feb. 12th, and in the course of a speech of an hour and three-quarters' duration made the following reference to the medical provisions of the Insurance Act.

They talked about an amending Act, said Mr. Lloyd George. By all means; nothing was perfect, even in a Liberal House of Commons. But let them get on with the really good things in the Act and all these things would be added unto them. The Tories were doing their best to stir up the doctors to deprive the workmen of the only medical aid which many of them could afford in time to save their lives. A more dastardly enterprise no human being could conceive, and when they stood themselves, as they all had to stand in turn, in need of medical assistance, he was afraid their action now would not do much to relieve their anxieties. He wanted to tell the truth, the whole truth, in this matter, and spare not the false prophets. What about the doctors? He proposed to give them a perfectly frank statement of the Government's position, and he was confident that so long as the doctors did not mix up business and politics it would satisfy them and

every reasonable man among the medical profession. What was the position? A great deal was said about contract practice. What was contract practice? It was an undertaking whereby the doctor engaged to provide medical treatment for a man at a flat rate—it might be 4s., 5s., or 6s., or some other figure per annum. Sometimes it was a flat rate by which the doctor undertook to cure the whole of a man's family. In some districts it was 3d. a week, in others 4½d. per week. It varied. Contract practice might be good or it might be bad; it had not been created by the Insurance Act. More than half the workmen of the country were cured now by contract—more than half, when they took all the various methods of contract cure into account. Contract practice had its advantages as well as its disadvantages. What were its advantages? It avoided the necessity a doctor was under when he was dealing with a man earning a small weekly wage of sending him in a big bill after a long illness and getting paid in driblets or not getting paid at all, which unfortunately was very often the case. After all, no doctor wanted to be on what he might call "judgment summons terms" with his patients. No professional man he ever met cared to keep account books. They hated it. A doctor did not want to take up his time with the worry of keeping an account, of being paid 5s. on account of a bill of £10 and of receiving another 6s. in the street perhaps, putting it down, making up the balance, and sending it in at Christmas. He would rather not. So in the working-class districts of this country they had devised this method of contract practice of saying, "Give me 4s. or 5s. a year and I will cure you of all the ills that flesh is heir to." That was one advantage. There was another advantage for a doctor. It was a kind of retaining fee for the family practice. If the doctor cured the head of the family for 4s. he would cure the rest of the family for a good deal more. He could send in bills for the rest of the family. He did not say the doctor would charge more, but even if he did, and he (Mr. Lloyd George) thought possibly he would, there was this advantage in the bargain—that where the head of the family was ill there was no one to earn, whereas if someone else in the family was ill the earner of the family was there to pay the bill. It was a double advantage. It was an advantage to the man himself, and it was an advantage to the doctor who was building up a practice.

What were the disadvantages? It was underpaid. The doctors had themselves to blame for that. He had read a speech by his friend, Mr. Handel Booth, in which he described very vividly the under-cutting, the under-selling, the under-bidding that went on very often between doctors. They would not be surprised to hear that Scotsmen had taken full advantage of it, and that the result was that in Scotland the average rate of pay in every contract district was decidedly lower than in England. He saw a case in an important city like Aberdeen where a doctor undertook contract practice for 2s. 6d. The average in England was 4s. That was thoroughly bad. Underpaid work was shoddy work. It was not to the advantage of the patient or of the doctor. It was far better for the doctor to feel that he was fairly treated and getting a fair wage for the very difficult, delicate, responsible work which he had to accomplish. All this was bad. But he was not responsible for it; the Insurance Act was not responsible for it. The Insurance Act did not perpetuate it, did not extend it, and certainly did not create it. In so far as the Act was concerned, all they had done was to provide substantial funds which would increase by a very large percentage the pay the doctors were now getting for contract practice. He would put the doctors' grievances. The doctors had three great grievances, and he would say at once that he sympathised with them. The doctor's first grievance was that he objected to what he called society control. There were many members of Friendly Societies present, and he was sure they would bear with him while he dealt with this point. The doctors' complaint was that they were under the domination—or, as they put it, under the heel—of the Friendly Society, that it imposed upon them harsh terms. He was not going to express any opinion upon that. If it was true it was a real grievance. He knew that Friendly Society men would instantly protest; it was useful to remind doctors that there were two sides to the question. The second grievance was this: the doctors said, "We don't mind attending men who are earning low wages on contract terms, but we do object to well-to-do people creeping into the Friendly Societies and claiming to be treated on the same terms as the labourer earning 15s. a week." He had analysed many of the Friendly Societies of the country and he found they were by no means confined to workingmen; there were tradesmen, farmers, publicans, schoolmasters, and professional men among the membership, and the doctors said it was unfair to expect them to treat these men at 4s. a head. He would tell the audience why the doctors said that. He was sure the profession would not quarrel with him when he made this statement. The doctor's bill was charged at a scale which had reference to the means of the patient. He did not charge a workman the same fee for a visit as he would charge a well-to-do tradesman or a professional man. The doctor said very truly, "It is because I am able to charge the well-to-do patients more that I am able to treat the workman for less." That was the doctor's case.

What was their third grievance? They said there were districts in England and Scotland and Wales where there was no contract practice at all at the present moment, where the doctors had refused to treat the patients on contract terms, and where the ordinary relations existed between doctor and a patient, where the doctor sent in his bill for time, attendance, medicine, and so on. There were districts in Lancashire—working-class districts—where they had no contract practice at all; there were certainly a very large number of rural districts where there was none, and doctors said, "Why should you force this obnoxious contract practice into districts where it does not exist at present?" He would give his answer to the doctors' grievances.

The first complaint was that they were under Friendly Society control. Under the Act they were no longer under the control of the Friendly Societies. There was an exception under what was known as the Harmsworth amendment, and he commended that amendment to the notice of certain newspapers which had taken full advantage of it to create trouble between the doctors and the Government. He would remind them that most of the trouble had arisen through the Harmsworth amendment, but that exception simply dealt with existing rights, and did not deal with the bulk of the insured persons. It did protect existing institutions, and he stood absolutely by that amendment. Speaking on behalf of the Government, whatever happened they declined to budge from that amendment. Dealing with the new practice that came into existence under the Act, what happened? The Government had set up an independent authority. It was true the insured persons constituted a majority, but that was only the very essence of things. They could not hand over to a committee power to spend money they were not responsible for finding. They must give the majority on a committee to persons who were responsible if any deficit arose. There were on this body representatives of the Government, of the County Council, and of the doctors. The committee could not arrange terms for paying the doctors without consulting the Local Medical Committee, representing the whole of the doctors in that district, and as though that was not enough an appeal had been allowed to the Insurance Commissioners upon the whole of the terms. Was not that an improvement on the present system under which the doctors dealt face to face with the societies without any appeal to anybody?

The doctors' second grievance had reference to the income limit. What had the Government done there? It had empowered the Insurance Committee to fix an income limit in a district, and as the Insurance Commissioners had full powers with regard to approving contracts they would have a word to say as to that. He wanted to give one word of warning—the fixing of a national income limit was impossible. Take the mining districts. Suppose an income limit of £2 was fixed, and they said that no miner earning over that should be treated on contract terms. That was a departure from the existing system and they could not work it. This year a miner might be earning under and next year over £2. On the other hand, they had a district where very few workmen earned anything like £2 a week. What happened if a man was outside the income limit? Was he to be left without any doctoring at all? Special provision was made for him, and that led up to the doctors' third point, that in some districts there was no contract practice—that the doctors vowed they would not submit to it. Under the Act they need have none. What happened? The money which was set aside for doctoring would be paid into a general pool in that area. The doctors would attend to their patients on exactly the same terms as of old, and would send in their bills as against that general pool. If there was a balance the workman would have to pay it. Of course, the local medical men must form some kind of committee to prevent any unfair charge upon the funds by one of their number. No doctor was forced by the Act to take contract practice; no patient was forced to take a doctor on contract unless he wished to. Every doctor who had a contract practice and wished to carry it on would get 50 per cent. more from his patients.

That was the position, and what were the doctors doing? He had no word to say against the British Medical Association, which represented the general practitioners of the country. The Association passed a resolution the other day that it did not see its way to meet the Commissioners until it had first of all had a meeting of the Council. The Association had been criticised a good deal by its own supporters, and it was naturally afraid to commit itself until it had a new meeting of the Council and heard what the doctors of the country wished it to do. Therefore the Association excused itself when an invitation was sent to them by Mr. Masterman. He was not complaining of that; he did not think the action of the Association was unreasonable. But he did not think that quite applied to the Royal Colleges of Surgeons and Physicians, who sent a curt, undignified, discourteous refusal to meet a Government department to discuss matters affecting the profession which they officially represented. These Colleges were formed under a charter, under an Act of Parliament, and when they refused an invitation of a Government department to discuss matters affecting the body they had been called into existence to represent, it was an example of rude ineptitude which was utterly without parallel in the history of the country. There was not a strike committee in the land which would have demeaned itself in that way. The Colleges said the Act was unworkable; the finance was inadequate; it was no use discussing it. That was the very reason why they should discuss it. Why did they not come and point out where the measure was inadequate? Why did they not come there like men and show where the deficiency arose? Why didn't they, if they knew, point out where the Act could be amended? The Commissioners were there to listen to all kinds of suggestions, but to refuse to appear there was behaviour of so extraordinary a character that it showed the societies absolutely unfit for the position which they assumed. For the future negotiations would be conducted with societies that really were prepared to discuss solemn and important matters like business men and were prepared to treat Government departments without regard to their political complexion.

The doctors said, "It is perfectly true you have all these conditions to protect us, all these safeguards; but the finance of the Bill is too limited, it is too insufficient, and there is no scope for negotiations." He had two answers for that. Doctors who were already engaged in contract practice could get 50 per cent. more than they were getting now; doctors who were not engaged in contract practice need not take it for the future. The only thing that would happen to them would be they would charge exactly what they were charging now and would send their bills in as now. The only thing was, there would be a fund to help their patients pay the bills. Surely they did not object to that? He wished there was a body like that to pay lawyers' bills. If all the doctors of the kingdom contemplated dropping their present methods of private practice and entering into contract arrangements with their patients, they might say the finance was inadequate. The question was open to argument, and the Government would listen to the doctors. All they had to do was to demonstrate to the satisfaction of the Commissioners that the finance provided was unsatisfactory. The Commissioners would give every consideration put before them impartial and careful attention, and if the Commissioners were satisfied that the case was made out, on their recommendation it would be the duty of the Government to advise Parliament to find all money necessary to provide a satisfactory medical service for the insured people of the country. But merely to send stiff and discourteous letters declining to discuss with a Government department the best methods of dealing with the question would meet with the reprobation of every business man. The Government was prepared to listen to every fair suggestion—not wild and extravagant demands; one gentleman who represented a certain section sent in a bill for an additional three millions. It was not bringing the demand within proportions that were debatable. Any fair proposal they would consider.

What would happen if the profession followed the advice of its extremists and declined to discuss terms, refused to administer the Act, to recognise committees set up by a statute of the realm, if they defied the law of the land, and said they would have nothing to do with it—

what would happen? Nothing! Except this—all the safeguards inserted in the Act for the protection of the medical profession would be wiped out at once. It was assumed by those critics of the Act who had been stirring up the doctors to do foolish things that the moment they refused to what they called "work the Act," that it was as dead as Queen Anne. The Act would be as alive as ever, but the safeguards for the protection of the profession would be dead. One of the troubles they suffered from was that there were men trying to work various parts of the Act without ever reading it, and those who advised the profession to take that extravagant course could never have read it. Did they really think the Government was so simple that it had not provided for a contingency of that sort? Did they look like it? They had just overlooked one little provision of the Act—that the Government had large "suspensory powers." What did that mean? (A voice: "Hang the doctors!") It might serve, Mr. Lloyd George retorted, to hang those who gave the doctors bad advice. Did the use of the suspensory powers mean that the benefits of the Act would come to an end? The 10*s.* a week, the 5*s.* a week, the consumptive benefit, the maternity and medical benefits would all go on. The insured persons would not be deprived of benefits. What would happen? The money allocated for medical benefit would be handed over to the insured persons through their societies. The doctors who had been compassing sea and land to get away from the Friendly Societies would suddenly find themselves face to face with them once more, and through their own action! There would be no Local Insurance Committee to arrange terms, no committee upon which the doctors were represented, the Societies would not be compelled to consult the Local Medical Committee, there would be no appeal to the Commissioners. All that would be suspended. How would a strike avail under those conditions? Would the local doctors send word to the committee on which their own patients were represented that they declined to meet them, that they would not discuss terms with them? It must be remembered it would not be Friendly Societies merely, but trades unions, industrial insurance companies, which would be dealing with money handed over to them bodily to treat with the doctors. Take the man who had a contract practice—the doctor for the local Oddfellows or Foresters—what would he do? He had worked up a practice laboriously, he had got hold of the heads of the family and had got the rest of the family through them. Was he going to say to the Oddfellows or Foresters, "I am going to throw up my practice"? Was he going to throw up the work of years and allow other doctors to scramble for his practice, and scramble with them under this disadvantage—that he would have quarrelled with his patients? Take the case of a man who was attending a works staff. Was he going to say, "Where do you get your money from? Is it true that there is a subsidy from the Insurance Fund?" The reply would be, "Yes, of course there is." "Well, then," the doctor would reply, "no more works staff for me! I won't touch it if it savours of National Insurance; they can take the unclean thing away." So the doctor would throw up his practice. Could they not see him doing it? If they did not, all the pledges in the world would be of no use to them.

He would utter two warnings. There were such things as medical institutes and dispensaries—about 70 or 80 were already established—where men were engaged on a whole-time service, and those institutions were spreading. If they wanted to encourage them, get up a doctors' strike; that was the way to help them along. They were being run now at 4*s.* a head; under the Act it would be 6*s.*, and if the doctors refused to work the Act the working classes could not be without medical attendance, so medical institutes and dispensaries would swarm in the land. His second warning was this: It was with great difficulty that the Government succeeded in getting the safeguards in the Act. Friendly Society men present would know that the Government came pretty near a quarrel with the societies in order to protect the doctors. The Friendly Societies resented the safeguards as showing want of confidence in them. If the doctors threw over those safeguards, and if the old relations ensued, let them not forget the Government found the position difficult when facing societies with four or five million members. There would be 14 million members in the future. Would any Government face the risk of resuming those safeguards in the teeth of 14 million people, after the experience this Government had had with the doctors? If these people who were "egging" the doctors on—he did not say their leaders, they were generally persons outside, busybodies meddling for purely political purposes, who would not have done it unless they thought they could break down the Act by doing it—if these people succeeded, did they really think they would be able to make the Act unpopular? Quite the reverse. What was unpopular was taking these powers from Friendly Societies. There was nothing they wanted more than to have their powers restored and to have freedom of action. If as a result of a refusal to work the Act the insurance funds were handed over to the societies to deal with as they pleased, it would be hailed with joy by all the Friendly Societies.

He still believed the arrangements of the Act were the best, and he was prepared to work patiently through the temporary unpopularity associated even with the safeguards he had referred to, because he thought they were the best for the medical profession, and best for the working classes in the long run; but if impulsive, misinformed men lured on the medical profession for political reasons, let its members not send the bill to the Government, but to the men who had enticed them to their destruction.

PARLIAMENTARY INTELLIGENCE.

PARLIAMENT assembled on Feb. 14th. The first few days of the session in the House of Commons will be devoted to the debate on the Address, and it is expected that allusions will be made to the attitude of the medical profession on the Insurance Act. Indeed, on the opening day Mr. BONAR LAW, the Leader of the Opposition, made a reference to the "threats" of the Chancellor of the Exchequer. Attention was also drawn in the King's Speech to the International Opium Convention, the gist of which is contained in an article on p. 441 of this issue of THE LANCET.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Uhtoff, of Breslau, Dr. Hess, of Würzburg, and Dr. Axenfeld, of Freiburg, have all declined the chair of Ophthalmology in succession to Professor von Michel.—*Dijon:* Dr. Petitjean has been appointed Professor of Pathology in succession to Dr. Misset.—*Düsseldorf (Academy of Practical Medicine):* Dr. August Hoffmann, professor of medicine, and Dr. Arthur Schlossmann, professor of pædiatry, have been appointed Secretaries to the Academy.—*Göttingen:* Dr. A. Kantorowicz has been recognised as *privat-docent* of Odontology.—*Iurieff (Dorpat):* Dr. O. Rothberg has been recognised as *privat-docent* of Medicine.—*Königsberg:* Dr. Wilhelm Meisner has been recognised as *privat-docent* of Ophthalmology.—*Saratoff:* Dr. Bogolinboff, of Kazan, has been appointed Professor of Surgery.—*Vienna:* It is expected that the chair of Medicine now held by Dr. C. von Noorden will shortly be vacated, as the professor is going to take up his residence in Frankfort, where he will have the direction of a special clinic for diabetes which is now being erected.—*Würzburg:* Dr. Eugen Fischer, of Freiburg, has been offered the post of First Assistant in the Anatomical Institute.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The annual dinner of this society was held at the Hotel Great Central on Feb. 8th, under the chairmanship of Mr. W. McAdam Eccles, the President. There was a good attendance of members and guests, and a most enjoyable evening was spent. After the loyal toasts had been honoured, Mr. J. G. Pardoe proposed the health of the Imperial Forces, and referred in eloquent terms to the debt owed by civilians to the defensive services of the Empire. This toast was responded to by Sir James Porter, Medical Director-General of the Navy, and Sir W. Launcelot Gubbins, Director-General of the Army Medical Service, who were both warmly received. At the invitation of the chairman Sir Philip Magnus, M.P., spoke a few words on the relations of the medical profession to the National Insurance Act. He said that the present public discussion of the medical aspects of the measure should have taken place long ago, before ever the Bill was introduced. If the profession had shown at an earlier stage the determination which it now showed the six cardinal points would have been incorporated in the Act. The £2 income-limit should have been insisted upon as the foremost demand of the profession, because it was essential that the area of contract practice should be limited. The profession must hold together and present a united front; it still held the fate of the scheme in its hands. Launching the Insurance Act without the doctors was like advertising the production of *Hamlet* without securing a performer for the central figure. It was not at all certain whether the Commissioners had the power to satisfy medical requirements, but the first duty of the profession was to ascertain whether this could be done. Medical men ought to coöperate in bringing the Act into operation, provided that their just terms could be secured. The health of the society was proposed by the chairman, who said that during the 30 years of its existence it had steadily grown in size and importance. Mr. Eccles referred to the value to the society of its close connexion with the West London Hospital and the Post-Graduate School. It now had 600 members, a flourishing journal, and an excellent programme of meetings. He announced that the Cavendish lecturer for the year was Professor Karl Pearson. He said that the society brought them all together at a cost per annum of 1*s.* less than they would receive for each person under the Insurance Act. Upon that matter, in spite of the insinuations of certain sections of the press, the general practitioner and the much-abused practitioner of Harley-street were at one. Mr. F. Lawrence, the senior member of the society and its president in 1884, in his reply traced the history of the society and its annual dinner from their small beginning in the early "eighties." Dr. S. D. Clippingdale, in a short humorous speech, welcomed the guests, including the representatives of kindred medical societies. Sir Henry Morris, President of the Royal Society of Medicine, was prevented by illness from attending and responding to this toast, but Dr. J. Mitchell Bruce,

President of the Medical Society of London, who replied jointly with Mr. Whitaker Thompson, Mayor of Kensington, and Dr. J. A. Macdonald, chairman of Council of the British Medical Association, regretted that the interest of the members of the Royal Society of Medicine was in some ways too sectional. This was shown in part by the poor response to the appeal for funds towards the new buildings shortly to be opened. Dr. Mitchell Bruce congratulated the West London Medico-Chirurgical Society on its firm hold upon the general practitioner, who alone could solve many of the most important questions in etiology and therapeutics; under the Insurance Act the general practitioner's opportunities in this direction would be curtailed, and his prospects of scientific advancement would be almost hopeless. The last item on the programme was the toast of "The Chairman," which was proposed by Professor Howard Marsh, Master of Downing College, in a few happy words. During the evening Mr. Watkin Mills and Miss Maguire gave some charming songs.

VACCINATION OFFICERS AND THEIR FEES.—The Wandsworth board of guardians at its meeting on Feb. 8th considered a letter from the vaccination officers drawing attention to the financial loss sustained by them in consequence of the working of the Vaccination Act and the Local Government Board Order, 1907. They asked the board either to increase their fees or grant them salaries, and also to make them gratuities for losses in past years. From a return presented to the board it appeared that in the Battersea district the average amount received in fees from 1903–07 was £219 6*s.* 2*d.*, average exemptions, 139; and in 1908–11 average fees £180 0*s.* 1*d.*, average exemptions, 616. Wandsworth district, 1903–07, average fees £104 3*s.* 3*d.*, average exemptions, 49; in 1908–11 average fees £98 4*s.* 7*d.*, average exemptions, 254. Putney district, 1903–07, average fees, £28 2*s.* 8*d.*, average exemptions, 121; 1908–11, average fees, £28 8*s.* 10*d.*, average exemptions, 47. No details were available for the Clapham district, but the remuneration in 1911 was £47. In the Streatham district, where the officer had resigned, the payment in 1911 was £99 15*s.* 1*d.*, but it was estimated that the fees would produce about £120 a year. The finance committee, who had considered the letter, stated that it appeared desirable that the vaccination officers should in future be paid by salary, and recommended that the stipend for Battersea should be £200 a year; Wandsworth and Clapham, £150; Streatham, £120; and Putney, £30. Lieutenant Sanders, R.N., in moving that the report be referred back, said that it was most extraordinary that in Wandsworth, where they had an increase in the population of 50,000, there should be a decrease in the vaccination fees. He did not object to the officers being paid salaries, but he objected to the suggestion made by the committee that the working of Mr. John Burns's Order was responsible for a diminished birth-rate. Mr. J. R. Archer seconded. Mr. G. B. Muter said that as the work was less the fees diminished, and consequently in striking at an average this should have been taken into account. He thought the salaries suggested were too excessive. If the board decided to grant the officers salaries there would not be the same inducement for them to press parents to get their children vaccinated. Mr. Archer: All the better for the children. Mr. P. Rees, the vice-chairman, said that the more exemptions the officers got the more work they got. Mrs. Cassidy, while inclined to pay the officers a salary, said that she was not agreeable to give them the large amounts proposed. If a ratepayer's business stopped he would not be expected to be relieved from the rates. The chairman (Canon Curtis) said that the finance committee went very carefully into this matter and the letter of the vaccination officers, along with the figures supplied. Through no fault of their own the salaries of these officers had decreased, and were likely further to decrease. They were engaged with the idea that they would have something approaching a fixed income, but that was now impossible. The committee thought that the best thing was to pay them a salary. In the case of Battersea the average fees received for the five years 1903–07 was over £200, and considering the decrease in the second period, they suggested £200 as a fair annual stipend. If the board were to pay these officers he thought they should be paid well. Mr. J. Wingfield said that as an antivaccinator he was glad to see that they were abolishing the pernicious system of payment by results. The board, by 17 votes to 4, adopted the committee's recommendation to pay the officers salaries, subject to the approval of the Local Government Board.

THE Cheshire county council has decided to advance the salary of its medical officer of health, Dr. Meredith Young, from £750 to £850 per annum, as from April 1st, and to follow this by three annual increments of £50 to a maximum of £1000.

UNIVERSITY OF CAMBRIDGE.—Dr. Jamieson B. Hurry (St. John's) has endowed a research studentship in physiology of the value of £100, tenable for one year and available every two years. It is suggested that the holder of the studentship shall be called the "Michael Foster research student," and the council has recommended that the first election shall be made in 1913.

CONGRESS OF PHYSIOTHERAPY, PARIS. — The Fourth Congress of Physiotherapy of French-speaking Physicians will be held at Paris on April 9th, 10th, and 11th. The subjects for discussion will be the following: Physical Agents in Chronic Rheumatism; Physical Agents in Obesity; and Physical Agents in Exophthalmic Goitre. The subjects of Acne, Angioma and Nævi, which have been withdrawn in view of the Congress of Dermatology to be held in Rome, will, nevertheless, receive a certain amount of attention. This Congress is organised by the delegates of the French Society of Electrotherapy and Radiology, the Society of Kinesitherapy, and the Society of Radiology of Paris. The President is M. le Professeur Bergonié (of the Société Française d'Electrothérapie), the treasurer is Dr. L. Delherm (2, rue de la Bienfaisance, Paris), and the secretary-general is Dr. A. Laquerrière of the same address. The subscriptions payable are 15 francs each for active members, the same amount for "membres adhérents" who do not take an active part, and 10 francs each for the wives or children of the members of the Congress.

UNIVERSITY OF LONDON.—University medals have been awarded on the results of the M.D. examination for internal and external students, December, 1911, as follows:—Branch I. (Medicine), Mr. Norman Claudius Lake, B.S., B.Sc. (Charing Cross Hospital); Branch IV. (Midwifery and Diseases of Women) Mr. William Henry Miller, B.S. (Guy's Hospital); Branch VI. (Tropical Medicine), Mr. Hugh Stannus Stannus (St. Thomas's Hospital and London School of Tropical Medicine). Dr. H. L. Eason has been appointed a member of the council for external students for the remainder of the period 1911–12 in place of Dr. Leonard Hill, resigned. Regulations have been adopted for the administration of the Medical Research Fund for which provision was made in the will of the late Dr. Charles Graham. The income of the fund, which will amount to about £1250 a year, will be devoted to aiding research in the School of Advanced Medical Studies connected with University College Hospital. A director of research will be appointed at a salary not exceeding £400 a year; there will be a scholarship in pathology of the value of £200 a year, tenable for two years; and provision is also made for the award of a gold medal for pathological research, for making grants to workers in the aboratories, and for defraying the expenditure on apparatus.

CHICHESTER INFIRMARY.—A year of satisfactory progress was reported at the annual meeting on Feb. 8th of the governors of Chichester Infirmary—in fact, for the first time for many years the income exceeded the expenditure by the sum of £72 5*s.* 1*d.* For the first time, also, all legacies received during the year, a matter of £311, instead of being placed to the general account and expended, had been placed to the reserve fund. The annual subscriptions rose during the year from £1194 to £1470, and the collections in boxes (470) from £66 to £267, an increase on the latter of no less a sum than £201. The fear lest curtailment of the work of the institution would follow if further subscriptions were not forthcoming has had effect, and the increased box collection shows how the institution is appreciated by those who must derive the greatest benefit from it. The number of in-patients during the year was 704 and of out-patients 2155, the latter being the largest number on record; while the number of major operations reached 506. The percentage of mortality was low, being 4·1 per cent. of the numbers treated, and, exclusive of patients admitted in a hopeless condition or dying within the 24 hours, 3·04 per cent., and of

those succumbing after operations 1·18 per cent. Regret was expressed that greater progress had not been made with the King Edward VII. reconstruction scheme, but the sum to be expended was large, and the difficulty of adapting an old building to the present stringent modern requirements great, so that the governors were determined to take time that they might obtain the best results. The financial position of the institution had improved, and the governors saw no reason why it should not continue to improve with an up-to-date building and the continued goodwill of the district, but there were still clouds which obscured the horizon—the National Insurance Act, the results of which none could foretell, and the debt on the general account. The governors paid a high compliment to the medical and nursing staffs.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London. LONGMANS, GREEN, AND CO., New York.

International Medical Monographs. General Editors: Leonard Hill, M.B., F.R.S., and W. Bulloch, M.D. Blood-Vessel Surgery and its Applications. By Charles Claude Guthrie, M.D., Ph.D., Professor of Physiology and Pharmacology, University of Pittsburgh. Price 14*s.* net.

Modern Theories of Diet and their Bearing upon Practical Dietetics. By Alexander Bryce, M.D., D.P.H. Camb., Author of "The Laws of Life and Health," &c. Price 7*s.* 6*d.* net.

Practical Anatomy. The Student's Dissecting Manual. By F. G. Parsons, F.R.C.S. Eng., Lecturer on Anatomy at St. Thomas's Hospital and at the London School of Medicine for Women; and William Wright, M.B., D.Sc., F.R.C.S. Eng., Lecturer on Anatomy at the London Hospital. In Two Volumes. Vol. I.: The Head and Neck; the Lower Extremity. Vol. II.: The Thorax; Abdomen: Pelvis; Upper Extremity. Price 17*s.* net (Two Vols.)

BAILLIÈRE, TINDALL, AND COX, London.

The Prevention of Dental Caries and Oral Sepsis. Being the Cartwright Prize Essay of the Royal College of Surgeons of England for 1906–1910, with Some Additions. By H. P. Pickerill, M.D., Ch.B., M.D.S. Birm., L.D.S. Eng., Professor of Dentistry and Director of the Dental School in the University of Otago. Price 7*s.* 6*d* net.

DULAU AND CO., LIMITED, 37, Soho-square, London, W.

niversity of London. Francis Galton Laboratory for National Eugenics. Eugenics Laboratory Memoirs. XV. Treasury of Human Inheritance. Parts VII. and VIII. Section XV. A. Dwarfism. By H. Rischbieth, M.A., M.D. Cantab., F.R.C.S. Eng., and Amy Barrington, Eugenics Laboratory. With 8 Plates of Pedigrees and 35 Plates of Illustrations. Plates LI.–LVIII. Plates O–Z, AA–WW. Pedigrees, Figs. 608–841. Price 15*s.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ADDISON, W. B., M.B., B.S. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the St. Mary's (Scilly Isles) District of the county of Cornwall.

ALLNUTT, E. B., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon at the West London Hospital.

ANDERSON, C. V., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

BAZETT, H. C., M.B., B.Ch. Oxon., F.R.C.S. Eng., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

BEADLES, J. N., M.B., B.S. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Cinderford District of the county of Gloucester.

BIRLEY, J. L., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

BRANDON, G. N., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

BYRNE, J. A., L.M.S.S.A. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Youlgreave District of the county of Derby.

CHAVASSE, A. R., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

EGAN, JOHN PATRICK, L.R.C.P. & S. Irel., L.M., has been appointed Assistant House Surgeon at the Taunton and Somerset Hospital.

FRY, H. J. B., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

GARDNER, A. D., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

GRAINGER, J. P., L.R.C.P. & S. Irel., L.M., has been appointed Junior House Surgeon at the Croydon General Hospital.

HAMILTON, A. K., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at St. Thomas's Hospital.

HIGGINS, A. G., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Newent District of the county of Gloucester.

HUGHES, PERCY T., M.B., C.M. Edin., D.P.H., has been appointed Lecturer on Mental Diseases at the University of Birmingham.

HUMPHRYS, F. J., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Skin Department at St. Thomas's Hospital.

JOHNSON, A. C., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

JONES, ERNEST LLOYD, M.D. Cantab., has been appointed Demonstrator in Medicine at the University of Cambridge.

LAIRD, W. B., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

LAUDERDALE, E. M., M.R.C.S., L.R.C.P. Lond., has been appointed Senior Obstetric House Physician at St. Thomas's Hospital.

LOCK, N. F., B.A. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

MARSDEN, W. G., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

MASSON, CHARLES ARMIT, M.B., Ch.B. Aberd., has been appointed Assistant Medical Officer at Coton Hill Hospital, Stafford.

MITCHINER, P. H., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Children's Surgical Department and to the Throat Department at St. Thomas's Hospital.

OAKDEN, W. M., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

PINTO-LEITE, HUBERT, M.R.C.S., L.R.C.P. Lond., has been appointed Second Anæsthetist to the Evelina Hospital for Children.

PONTON, JOHN ALFRED WILLIAM, M.B., B.Ch., B.A.O. Dub., has been appointed Medical Officer to the Ottery St. Mary (Devon) Cottage Hospital.

RIXON, C. H. L., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Assistant at St. Thomas's Hospital.

ROSS, W. D., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

ROUQUETTE, S. H., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

SALMOND, R. W. A., Ch.M., M.D. Aberd., D.P.H., has been appointed Surgeon-in-Charge of the X Ray Department at St. Mary's Hospital for Women and Children, Plaistow.

SKRIMSHIRE, F. R. B., M.R.C.S., L.R.C.P. Lond., has been appointed Ophthalmic House Surgeon at St. Thomas's Hospital.

SMITH, F. BATTINSON, M.R.C.S., L.R.C.P., has been appointed House Physician at the Warneford, Leamington, and South Warwickshire General Hospital, Leamington Spa.

TAYLOR, J. F., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Obstetric House Physician at St. Thomas's Hospital.

TREHERNE, C. W., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Children's Medical Department at St. Thomas's Hospital.

VESSELOVSKY, V. C., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Assistant at St. Thomas's Hospital.

WATSON, GEORGE W., M.D. Lond., M.R.C.P. Lond., M.R.C.S., has been appointed Honorary Physician to the Leeds Association for the Prevention and Cure of Tuberculosis.

WEDGWOOD, W. B., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the King's Lynn (No. 2) District of the county of Norfolk.

WHORLOW, C. G., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Ear Department and to the Throat Department at St. Thomas's Hospital.

WIGMORE, J. B. A., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Children's Medical Department at St. Thomas's Hospital.

Vacancies.

For urther information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and lodging.

BARRY URBAN DISTRICT COUNCIL.—School Medical Officer. Salary £400 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum, with apartments, board, and attendance.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant. Salary at rate of 52 guineas per annum.

BIRMINGHAM UNIVERSITY.—Lecturer in Physiology. Salary £150 per annum.

BOMBAY, BARODA, AND CENTRAL INDIA RAILWAY.—Two Medical Officers. Salary Rs.500 per calendar month.

BRADFORD HOSPITAL AND WORKHOUSE.—Assistant Resident Medical Officer (female). Salary £130 per annum, with rations, apartments, and washing.

BRISTOL GENERAL HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, residence, &c.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Second House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CHARING CROSS HOSPITAL.—Physician.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—Lectureship in Hygiene and Public Health.

DERBY COUNTY ASYLUM, Mickleover.—Junior Assistant Medical Officer. Salary £120 per annum, with apartments, board, washing, and attendance.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £120 per annum, with board, residence, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

DUNDEE ROYAL INFIRMARY.—Non-resident Obstetric Assistant.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing.

EXMINSTER, DEVON COUNTY ASYLUM.—Fourth Assistant Medical Officer. Salary £130 per annum.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—House Physician and House Surgeon, each for six months. Salaries at rate of £70 per annum, with board and residence.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Clinical Pathologist and Bacteriologist. Salary £200 per annum.

HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £60 per annum.

INFANTS HOSPITAL, Vincent-square, Westminster.—Assistant Physician.

LARBERT, STIRLING DISTRICT ASYLUM.—Junior Assistant Medical Officer. Salary £130 per annum, with board, &c.

LEEDS GENERAL INFIRMARY.—Medical Tutor. Salary £125 per annum. Also Medical Registrar. Salary £25 per annum.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—Two House Physicians and Three House Surgeons, all for six months. Salaries at rate of £60 per annum, with residence and maintenance.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons, all for six months. Salary at rate of £60 per annum, with board and residence.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Two House Surgeons. Salary at rate of £50 per annum, with board and residence.

NEWCASTLE-UPON-TYNE UNION INFIRMARY AND WORKHOUSE.—Medical Superintendent. Salary at rate of £450 per annum.

NEW HOSPITAL FOR WOMEN.—Female Senior Assistants.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, light, and fuel.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Surgeon and Casualty House Surgeon, unmarried, each for six months. Salaries at rate of £80 per annum, with board, &c.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Appointments.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £100 per annum.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon. Salary at rate of £50 per annum, with board and residence.

SHEFFIELD UNIVERSITY.—Demonstrator in Experimental Physiology and Pharmacology. Salary £200 per annum.

SHREWSBURY, SALOP INFIRMARY (COUNTY HOSPITAL).—House Physician Salary at rate of £70 per annum, with board and apartments.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £60 per annum, with rooms, board, and washing.

STOCKWELL TRAINING COLLEGE, Stockwell-road, S.W.—Medical Officer.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Surgeon. Salary £100 per annum, with apartments, board, and washing.

WEST AFRICAN MEDICAL STAFF.—Number of Appointments. Salary £400 per annum.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Physician.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WEST RIDING OF YORKSHIRE COUNTY COUNCIL, Wakefield.—Medical Inspector. Salary £300 per annum.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum.

WINDSOR, KING EDWARD VII HOSPITAL FOR WINDSOR, ETON, AND DISTRICT.—Senior House Surgeon. Salary £80 per annum, with residence, board, laundry, and attendance.

WINWICK, LANCASHIRE COUNTY ASYLUM, Warrington.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Castletown, in the county of Caithness; and at Lutterworth, in the county of Leicester.

Births, Marriages, and Deaths.

BIRTHS.

PEACOCK.—On Feb. 6th, at Penlu House, Craven Arms, Salop, the wife of W. H. Peacock, M.B., B.S., West African Medical Staff, of a daughter.

SWAN.—On Feb. 11th, at Wimpole-street, the wife of R. H. Jocelyn Swan, M.S. Lond., F.R.C.S., of a daughter.

MARRIAGES.

HORTON—BLACK.—On Feb. 10th, William Claude Horton, M.B., F.R.C.S., to Violet Muriel, younger daughter of the late William Black (Author) and Mrs. William Black, Paston House, Brighton.

WILLIAMS—POWELL.—On Feb. 10th, at Christ Church, High Harrogate, W. R. Rees Williams, Captain I.M.S., to Gertrude, second daughter of Charles A. Powell, of Oakwood Lodge, Harrogate.

DEATHS.

ALLCHIN.—On Feb. 8th, after a long illness, Sir William Henry Allchin, M.D., F.R.C.P., Physician Extraordinary to His Majesty the King, aged 65.

LISTER.—On Feb. 10th, at Walmer, the Right Hon. Lord Lister, O.M., F.R.S., in his 85th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

LORD BROUGHAM AS HIS OWN PHYSICIAN.

To the Editor of THE LANCET.

SIR,—From '50 to '58 I was resident physician in the family of the last Lord Holland, he being in a very delicate state of health. I find in my diary of '55 the subjoined extract, which may interest you and your readers. It may be considered as a successful departure from the ordinary routine by an unqualified practitioner.

I am, Sir, yours faithfully,

Worthing, Jan. 19th, 1912. I. D. CHEPMELL.

EXTRACT FROM A MEDICAL DIARY OF 1855.

A constant visitor to Holland House during June and July was Lord Brougham, who was then in somewhat indifferent health, and glad to escape for a few nights from the heat and dust of London to enjoy the comparatively fresh air and cheerful surroundings of Holland House. On one occasion he arrived late in the evening, having contracted a bad cold attended with sore-throat and loss of voice. I advised him to go to bed at once, as he seemed feverish, and prescribed some appropriate remedy. With the first part of my recommendation he complied, but with the second he would have nothing to do, saying, "Don't you know that a man at 40 is either a fool or a physician, and sometimes both?" adding sharply, "How old are you, Doctor?" I was happy to be able to assure him, on wishing him good night, that I was only 26 years old.

Towards two o'clock in the morning I was awaked by a loud rapping at my door, and on opening found Lord B. standing in his nightshirt with an empty pitcher in his hand. In voice almost unintelligible from hoarseness he announced that he wanted a can of boiling water, some carbonate of soda, and a pot of currant jelly I thought he must be delirious, but as he was not to be put off by argument I thought best to pacify him by compliance with his strange request. At that time of night, everyone being fast asleep, the desiderata were not easily obtainable. Nevertheless, I set out on a foraging expedition; I woke up the old man of the kitchen, the old woman of the still-room, and returned with my spoils to the oddest of men upstairs, Lord B.

He was quite ready with his empty washing-jug, and proceeded to empty the pot of jelly into this receptacle, adding two large tablespoonfuls of soda, and filling up the jug with boiling water: the result, a foaming mixture of blood-red colour, and worthy of Macbeth's witches, he carried off in triumph to his room. At half-past six I awoke, and with a guilty sense of having neglected my patient I went and rapped at Lord B.'s door, first gently, then loudly, and receiving no answer stealthily opened it. On the floor was the jug empty, as was also the bed. The room was in great disorder, and the window wide open. I was really alarmed, and a painful sequence of thoughts ran through my mind—delirium, suicide, inquest! with a rider of temporary insanity, and culpable neglect on the part of attendant physician! I rushed to the window, and was relieved to find no trace of such a terrible disaster.

Returning to my room I dressed hastily, and running downstairs to the library found it untenanted. The floor was strewn with torn-up papers, and on one of the writing tables lay a pile of letters ready for post, all the work of my energetic patient! From a housemaid who was dusting the apartment I learnt that Lord B. "had been up since five, and was now gone out." I met his lordship at the breakfast table shortly afterwards and found him perfectly well, his strange remedy having worked wonders.

A BROKEN NECK IN COURT.

A REMARKABLE case came before His Honor Judge Mackarness, with whom was Dr. H. Nethersole Fletcher acting as medical assessor, at Lewes county court on Feb. 6th. A carter named Weller brought a request for arbitration under the Workmen's Compensation Act. On August 3rd, 1909, a horse which he was driving was frightened by a motor-car, and Weller was thrown out of the cart and seriously injured. He was taken to hospital, where it was found he had concussion and spinal injury, and had complete paralysis of the arms, legs, and muscles. He remained in hospital for 13 weeks and received full compensation, 10*s.* a week, until July 29th last, when it was reduced to 7*s.* 6*d.* Dr. W. A. Dow, who took X ray photographs of Weller's neck on Feb. 5th, produced the negative in court; it showed a distinct injury about level with the fifth vertebra and signs of fracture and displacement. Dr. Dow expressed the opinion that any sudden movement of the neck or any exertion might result in further damage to the spinal column, with serious and speedy consequences. This opinion was supported by two other medical witnesses, but dissented from by one who had examined him in July last, and who

thought that while no doubt the man had had a very serious injury and had made a miraculous recovery, there was nothing to prevent his taking light work. He did not agree with the other medical witnesses as to the danger of a sudden movement of the neck, having regard to the fact that the accident happened two and a half years ago. His honour, after consulting the medical assessor who had examined Weller, came to the conclusion that Weller was not capable of doing any light work and that the reduction should not be made, and awarded Weller 10s. a week, the arrears to be paid, with costs.

THE VAGRANCY PROBLEM IN SURREY.

WHEREAS the experience of Sussex in having adopted the way-ticket and bread-station system for dealing with the vagrancy problem is that there has been a reduction of 41 per cent. in the number of casuals in six years, it is not surprising to find that Surrey is now proposing to follow the same example. A conference called by the Surrey county council was held at Kingston on Feb. 8th, at which every board of guardians in the county was represented, and it was decided to recommend the boards of guardians in that county to take steps to establish the system as soon as possible. Surrey is evidently finding some truth in the statement made by Sussex guardians that by their action they are simply driving the tramping fraternity into Surrey. But inasmuch as the main object of the scheme is to differentiate between the genuine working man in search of employment and the confirmed tramp, and at the same time to show the public that proper provision is made for feeding the casuals so that there is no reason whatever for charitable people to give to beggars calling at the doors, it will not be completely successful until the system is universal throughout the country. Surrey's action, however, shows that the movement is spreading. The system is in vogue in Berkshire and in adjacent unions in the counties of Oxford and Buckingham, and in every case the decrease in the number of tramps has been followed by a decrease of offences against the law. An article on the Sussex system appeared in THE LANCET on Nov. 18th, 1911, p. 1447.

MEDICAL LITERATURE FOR MEDICAL MISSIONARIES.

To the Editor of THE LANCET.

SIR,—You were good enough rather more than a year ago to put in THE LANCET an appeal for medical literature for doctors working in the mission field. May I ask you to tell your readers that any copies of the current numbers of THE LANCET will be gratefully received and forwarded to the missionaries by Miss B. Gambier Parry, Bacton, Wokingham, Berks.—I am, Sir, yours faithfully,

J. ANDERSON ROBERTSON, M.A., M.B.,
Secretary, Medical Missions Department, S.P.G.

15, Tufton-street, Westminster, S.W., Jan. 31st, 1912.

THE CHLOROMETER.

THE Roborat Company, Limited, of 23, Cloth Fair, Aldersgate, London, E.C., have submitted to us a simple graduated glass instrument called the chlorometer, which is designed for the estimation of the chlorides in urine in clinical practice. The test is based upon the discharge of the blood-red colour of iron sulphocyanide by silver nitrate. In the presence of chlorides silver chloride is first formed, and as soon as the chlorides have been precipitated the red colour of the sulphocyanide begins to be discharged. The process is sufficiently accurate for most clinical purposes. It is carried out as follows. In ordinary circumstances the urine is diluted a tenth. The diluted urine is then poured into the tube up to the mark U; then a mixture of iron alum solution and dilute nitric acid (normal acid answers very well) to the mark I, followed by N/10 sulphocyanide of sodium solution to the mark T. A decinormal solution of silver nitrate is next added until the blood red colour of the sulphocyanide is discharged. The reading at the top of the mixed fluids gives at once the amount of chlorine present in milligrammes per cubic centimetre of urine. As an example, we took a 1 per cent. solution of common salt as representing a normal urine. This was diluted one-tenth with distilled water. The ultimate reading on the tube after carrying out the test in the manner just described was 6·5 milligrammes per cubic centimetre of original salt solution, which gives 1·07 per cent. of common salt found as against 1 per cent. calculated.

A VEGETARIAN DIET FOR AN INFANT.

A MEDICAL man has asked for assistance in drawing up a vegetable dietary for the twelve months' old daughter of a patient who, having become completely relieved of his rheumatism under a vegetarian diet, is desirous of bringing up his little daughter thereon, but is properly anxious that it should include all the elements necessary to growth and development. This is a matter on which it is difficult to speak with precision and authority, but any such dietary must include adequate variety without excessive quantity; adaptation to idiosyncrasies, habits, and familial peculiarities; an adequate proportion of hard foods to promote development of jaws and teeth; a limit of four meals daily, with three as the optimum. On these principles the following is suggested:—*Breakfast:* One cup of bread-and-milk, one finger of toast, with butter, home-made apple jelly, or honey. The toast should gradually be increased and the bread and-milk decreased as the teeth develop. *Dinner:* One potato, banana, or baked apple, with rice, macaroni, or other milk pudding. As the child gets older, bean pie, mock chicken cutlets, mock fish, or mock beef rissoles are substantial substitutes for the milk puddings. Details for their preparation may be obtained from "Hints towards Diet Reform," price 2*d.* (see THE LANCET, Feb. 10th, p. 409), and "Economical Dishes for Workers," price 1*d.*, both published by the National Food Reform Association, 178, St. Stephen's House, Westminster. *Tea:* The same as breakfast. Food taken before going to bed—a practice generally to be deprecated—should consist of a small cup of vegetable soup. Speaking generally, a child between one and two years of age requires less than one-third of the total quantity of food needed by a man at moderate work (Atwater). Many authorities who are in entire sympathy with vegetarian principles in their application to adults nevertheless recognise the value of animal proteids in building up the tissues of the growing child, and there is at times undoubtedly observable a want of energy and vigour in children brought up on a too rigid vegetarian diet.

A USEFUL "TOASTER."

WE have received from Messrs. Harrods, Limited, a specimen of a "toaster" which might be quite a useful adjunct to the sick-room. It consists of a plated metal frame on four legs, supporting a thin metal sheet and a square of wire gauze, beneath which is a spirit lamp whose wick can be adjusted to give a large or small flame by rotating a handle. By placing cut bread on the gauze excellent toast can be made in a few minutes, and in summer time the toaster can be used for keeping a dish warm or for heating milk.

M. G. (*Bombay*).—For the last three centuries, at any rate, it has been generally felt that the ordinary processes of the law form a better protection against such outrages.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for March and April:—

March 7th–11th (Berlin).—Thirty-third Balneological Congress.
March 23rd–April 4th (London, Royal Agricultural Hall).—International Smoke Abatement Exhibition.
April 1st and 2nd (Milan).—Italian National Convention upon the Sexual Question.
" (London).—First Congress of Pure Food and Health Society of Great Britain.
" 1st–7th (Tunis).—Twenty-second Congress of French-speaking Alienists and Neurologists.
" 8th–13th (Rome).—Seventh International Congress of Dermatology and Syphilology.
" 8th–15th (Johannesburg).—Thirteenth South African Medical Congress.
" 9th–11th (Paris).—Congress of Physiotherapy for French-speaking Physicians.
" 9th (Berlin).—Eleventh Congress of the German Society for Orthopædic Surgery.
" 9th–13th (Giessen).—Congress on Study of Families, Inheritance, and Race Hygiene.
" 10th–13th (Berlin).—Forty-first Congress of the German Surgical Society.
" 14th (Berlin).—Eighth Congress of the German Röntgen Society.
" 14th–20th (Rome).—Seventh International Congress on Tuberculosis.
" 15th–18th (Wiesbaden).—Twenty-ninth German Congress for Internal Medicine.
" 21st–24th (Munich).—Twenty-sixth Meeting of the Anatomical Society.
" (London, Olympia).—Ideal Homes Exhibition.

The following journals, magazines, &c., have been received:—Ophthalmology, Archives Médecine et de Pharmacie Militaires, Annales de Gynécologie et d'Obstétrique, Monthly Cyclopædia and Medical Bulletin, Revue de Gynécologie, South African Medical Record, Archives of the Roentgen Ray, Dominion Medical Monthly, Journal of Tropical Medicine and Hygiene, Annali di Medicina Navale e Coloniale, Edinburgh Medical Journal, Tuberculosis, Review of Neurology and Psychiatry, La Clinica Castellana, Transvaal Medical Journal, Bulletin of the City of New York Lying-in Hospital, Archives Générales de Médecine, Indian Medical Gazette, Archiv für Experimentelle Pathologie und Pharmakologie, Dublin Journal of Medical Science, Sleeping Sickness Bureau Bulletin, Journal of Pathology and Bacteriology, North of England Clinical Journal, Canadian Medical Association Journal, Local Government Review, &c.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. temporary address during building of new house).

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—H. Charles Cameron, H. H. Dale): at 4.30 P.M.

Discussion

On the Tuberculin Treatment of Pulmonary Tuberculosis (opened by Dr. Arthur Latham).

The following will take part in the Discussion:—Dr. Nathan Raw, Dr. W. d'Este Emery, Dr. A. C. Inman, Dr. S. V. Pearson, Dr. J. W. Linnell, Dr. J. J. Perkins, Dr. W. H. Wynn, Dr. D. Lawson, Dr. Paul Mathews, Dr. G. A. Crace-Calvert.

The DISCUSSION will be continued on the following day, Wednesday, Feb. 21st, at 4.30 P.M.

PATHOLOGICAL SECTION (Hon. Secretaries—J. C. G. Ledingham, A. E. Boycott): at 8.30 P.M.

Prof. Beattie and Dr. A. J. Hall: (1) A New Method of Mounting Museum Specimens; (2) Demonstration of Specimens of Neurofibromatosis and Multiple Embolic Aneurysms of the Pulmonary Artery.

Dr. J. A. Arkwright: Variation in Colonies of *B. diphtheriæ*.

Dr. Hort and Dr. Penfold: Salvarsan Fever and its Relation to Other Types of Injection Fever.

Dr. Bayon: Animal Experiments in connexion with *B. lepræ*.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—T. R. Whipham, H. S. Clogg, Percy G. Lewis), at 11, Chandos-street, W.: at 4.30 P.M.

Cases:

Dr. R. Hutchison: (1) Paralysis of the Muscles of the Neck (? Anterior Poliomyelitis); (2) Hysterical Vomiting followed by Achylia and Infantilism; (3) Fibroid Lung with a Large Cavity at the Apex.

Dr. H. Thursfield: Eruption of Green Teeth in a Case of Prolonged Jaundice.

Dr. F. Langmead: Bile-stained Teeth.

Dr. James Taylor: Athetoid Movements.

Dr. L. Guthrie: Transposition of the Viscera.

Dr. T. R. Whipham: Arthritis of the Shoulder and Hip (? Tuberculous).

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan): at 8.30 P.M.

Paper:

Dr. Reginald Dudfield: Summer Diarrhœa in 1911.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—9 P.M., Dr. A. E. Garrod: Glycosuria. (Lettsomian Lecture II.)

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Demonstration of Clinical Cases. Adjourned Discussion on Dr. J. L. Bunch's paper on Prurigo and Itching Diseases of the Skin.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

TUESDAY.—8.30 P.M., Mr. G. Jones: Defects in the Organisation of the Medical Profession.

CHELSEA CLINICAL SOCIETY, St. George's Hospital Medical School, S.W.

TUESDAY.—8.30 P.M., Dr. Hyslop: The Intercranial Mechanism in Health and Disease.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION, 11, Chandos-street, Cavendish-square, W.

THURSDAY.—4.30 P.M., General Meeting. Dr. J. G. Forbes: Pollution of Swimming Baths.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. Galloway: Clinique (Skin). 5.15 P.M. Lecture:—Mr. P. M. Yearsley: The Nasopharynx and its Relation to other Regions.

TUESDAY.—4 P.M., Dr. J. Collier: Clinique (Medical). 5.15 P.M., Lecture:—Dr. L. Guthrie: Hysteria in Childhood.

WEDNESDAY.—4 P.M., Mr. H. J. Paterson: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. W. Arbuthnot Lane: Chronic Intestinal Stasis.

THURSDAY.—4 P.M., Mr. E. Corner: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. D. Drummond (Newcastle): Is it a Case for Operation? A Problem in Diagnosis.

FRIDAY.—4 P.M., Dr. S. Stephenson: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Dunn: The Clinical Uses of Prisms.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11 A.M., Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. S. Taylor: Intestinal Ogstruction.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine. (Lecture IV.)

THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture: Dr. R. H. Cole: Hypochondriasis.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Simson: Extra-uterine Gestation.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. B. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

TUESDAY.—Clinic: 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld).; Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Dr. G. N. Meachen: The Treatment of Various Types of Eczema.

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappell). 4.30 P.M., Demonstration:—Dr. T. R. Whipham: Selected Cases of Children's Diseases.

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. B. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. S. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 3.15 P.M., Dr. R. Wells: Medicine. 2.15 P.M., Mr. R. Carling: Surgery. 4.15 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 5 P.M., Special Lecture:—Mr. McGavin: Fractures.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4.30 P.M., Special Lecture:—Dr. Lister: Pneumonia in Children.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Sir J. Rose Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Sir John Bradford: Ascites.

SATURDAY.—10 A.M., Radiography. 11 A.M., Dr. A. Davies: Pathological Demonstration. 2 P.M., Operations. Out-patient Demonstration:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY.—4 P.M., Lecture:—Dr. Batten: Clinical Cases in the Ward.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. J. Taylor: Hemiplegia.

FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. J. Taylor: Tabes Dorsalis.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—6 P.M., Mr. W. Hampson: X Rays. Other Skin Affections.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: The Solution of the Confusion between Pityriasis Rubra Pilaris and Lichen, and the Treatment of Each.

UNIVERSITY OF LONDON (UNIVERSITY COLLEGE), The Francis Galton Laboratory for National Eugenics.

TUESDAY.—8.30 P.M., Dr. M. Greenwood: Infantile Mortality in Relation to Administrative Control. (Lecture IV.)

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Dr. C. H. Melland: Spasmodic Respiratory Affections. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. C. Moore: Some Conditions which may Simulate Disease of the Stomach.

FRIDAY.—4.30 P.M., Mr. C. Roberts: Tumours of the Breast.

SALFORD ROYAL HOSPITAL.

THURSDAY.—4.30 P.M., Mr. J. B. Macalpine: Swellings in the Neck (Post-Graduate Course).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (21st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (22nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M., Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (24th).—Royal Free (9A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. II. of 1911 were given in THE LANCET of Dec. 30th, 1911.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 14th, 19

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 8	29·05	S.E.	...	56	52	42	45	47	Cloudy
,, 9	29·08	S.	0·25	71	54	47	49	50	Cloudy
,, 10	29·41	SSW	0·07	73	53	45	45	46	Fine
,, 11	29·23	S.W.	0·03	87	53	42	44	45	Cloudy
,, 12	29·37	E.	0·34	64	50	43	43	43	Raining
,, 13	29·58	S.	0·07	50	46	43	43	45	Overcast
,, 14	29·94	N.E.	0·02	57	46	44	43	44	Overcast

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